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THEIR PEOPLE

NORTH AMERICA

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THE CONTINENTS AND THEIR PEOPLE

NORTH AMERICA

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THE CONTINENTS AND THEIR PEOPLE

NORTH AMERICA

A SUPPLEMENTARY GEOGRAPHY

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PREFACE

The scope of Geography is widening. The reader, whether young or old, desires information of a concise and accurate nature, given in such an interesting fashion as to make the scene, circumstance, or activity live before the eye. New and important industrial, economic and social problems constantly arise as our life becomes more complex and our interdependence more far-reaching. The modes of life, the customs of communities and peoples; the development of great industries; the discovery and use of our natural resources; the application of scientific principle and inventive genius to production, transportation, construction, — all have a profound interest and significance to the child and to the adult.

The great cities present a never ending series of interesting problems. The country is equally rich in possibilities for study. The wonders of nature are spread abroad, and they tell to the careful observer a marvelous story. The life and the development of man and the growth of his institutions are conditioned in no small degree by the physical nature of his surroundings. River, lake, mountain, plain;

fertile valley and burning desert; forest and swamp; the hidden mine and the throbbing ocean,—each profoundly influences life.

To supplement and enrich the work offered by the textbooks in geography, and to give to those who read and study a clearer understanding of their own and of other countries, is the mission of the series of Supplementary Geographies of which this volume is the first. The most important physical and life conditions will receive treatment, and the significance of human response to its environment will be brought out.

The value of illustrations in the teaching of geography is now generally recognized. Only when they are actually studied in connection with the text, do they serve their full purpose.

It is the purpose of the authors to present somewhat fully the more important geographical units, rather than to accord to all a superficial treatment. One book will be devoted to each continent. As mere statement of fact is not geography, cause and consequence have been related, as far as is consistent with the ability of the pupils. This permits of the use of the books for study as well as for reading.

The authors wish to express their indebtedness to the Southern Pacific and Canadian Pacific Companies for the illustrations furnished by them. From the former, Figures 22, 24, 27, 44, 45, 46, 61, 62, 63, 64, 65, 70, 71, 72, 76, 87, 115 and 116 were obtained. The Canadian Pacific supplied Figures 96, 97, 98, 99, 100, 105 and 108. Acknowledgment of pictures received from other sources is made elsewhere.

THE AUTHORS.

Pasadena, California,
April, 1910.

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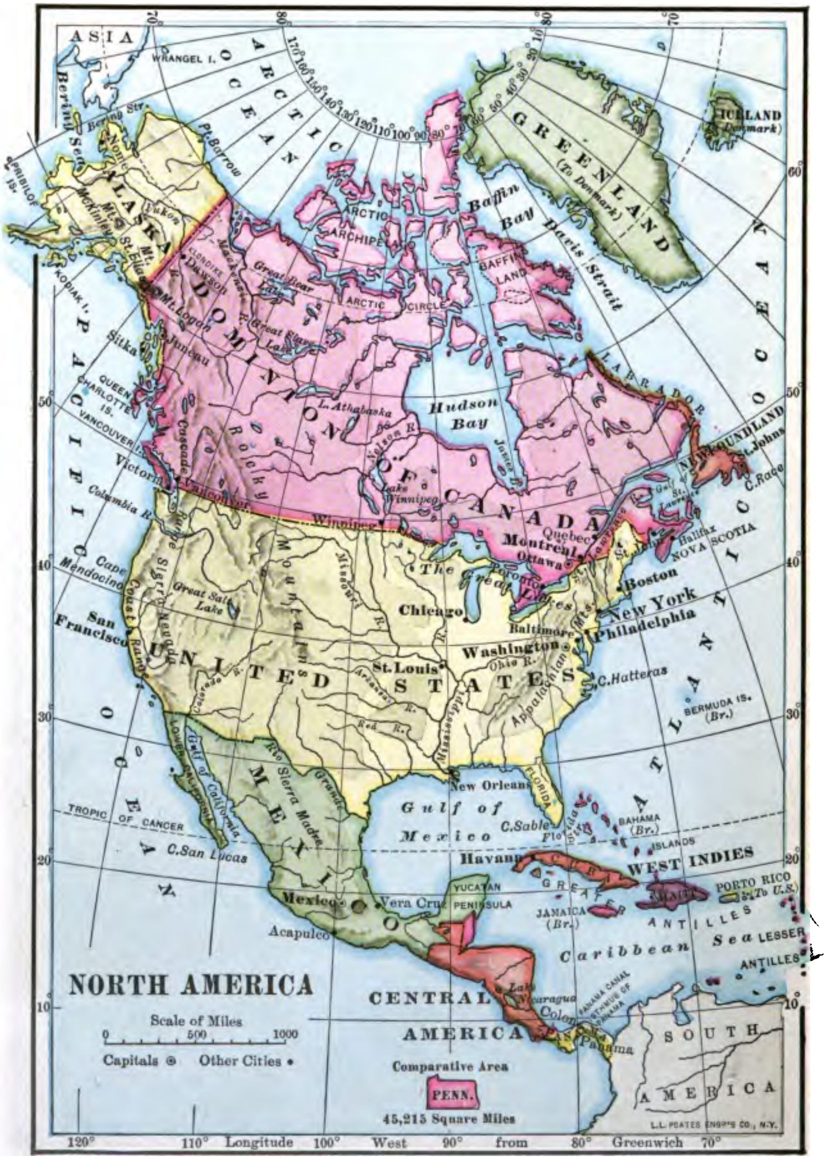
NORTH AMERICA
Scale of Miles
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Capitals ◎ Other Cities •
Comparative Area
PENN.
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ASIA
WRANGEL I.
ARCTIC OCEAN
Bering Str.
Bering Sea
PRIBILOF IS.
Nome
Pt. Barrow
Yukon
ALASKA
Mt. McKinley
Mt. St. Elias
KODIAK I.
KLONDIKE
Dawson
Mackenzie R.
Mt. Logan
Sitka
Juneau
QUEEN CHARLOTTE IS.
VANCOUVER I.
Victoria
Vancouver
Cascade
Rocky
Great Bear Lake
Great Slave Lake
L. Athabaska
ARCTIC ARCHIPELAGO
ARCTIC CIRCLE
DOMINION OF CANADA
Nelson R.
Lake Winnipeg
Winnipeg
Hudson Bay
James B.
Baffin Bay
BAFFIN LAND
Davis Strait
GREENLAND (To Denmark)
ICELAND (To Denmark)
LABRADOR
NEWFOUNDLAND
St. Johns
C. Race
Gulf of St. Lawrence
St. Lawrence
Quebec
Montreal
Ottawa
Toronto
Halifax
NOVA SCOTIA
St. John
The Great Lakes
Boston
New York
Philadelphia
Baltimore
Washington
Ohio R.
C. Hatteras
Appalachian Mts.
Chicago
St. Louis
Missouri R.
Mississippi R.
Arkansas R.
Red R.
Colorado R.
Columbia R.
Cape Mendocino
San Francisco
Coast Range
Sierra Nevada
Great Salt Lake
Mountains
UNITED STATES
BERMUDA IS. (Br.)
ATLANTIC OCEAN
PACIFIC OCEAN
FLORIDA
Florida Str.
C. Sable
New Orleans
Gulf of Mexico
BAHAMA (Br.) ISLANDS
Havana
CUBA
GREATER ANTILLES
WEST INDIES
HAITI
PORTO RICO (To U.S.)
JAMAICA (Br.)
Caribbean Sea
LESSER ANTILLES
TROPIC OF CANCER
LOWER CALIFORNIA
Gulf of California
C. San Lucas
Rio Grande
Sierra Madre
MEXICO
Mexico
Vera Cruz
Acapulco
YUCATAN PENINSULA
CENTRAL AMERICA
Lake Nicaragua
Colon
PANAMA CANAL
ISTHMUS OF PANAMA
Panama
SOUTH AMERICA
120° 110° Longitude 100° West 90° from 80° Greenwich 70°
10° 20° 30° 40° 50° 60° 70° 80°
L.L. POATES ENGR'G CO., N.Y.

FIG. 2.

NORTH AMERICA

CHAPTER I

OUR CONTINENT

On the twelfth day of October, in the year 1492, three small vessels, bearing aloft the flag of Spain and commanded by a brave admiral, were approaching what is now the state of Florida. For weeks the sailors had looked anxiously across the waters to the westward, but only the never ending ocean met their view. As day after day passed without a sight of land, the men became homesick and full of fear. They begged their leader to give up the voyage and to turn the ships toward their beloved Spain. This the admiral refused to do, for he was commissioned by the king and queen of Spain, Ferdinand and Isabella, to seek a new route to India, and no danger would cause him to turn back.

Are you wondering why these sailors were so fearful? It was because they were sailing over an unknown sea. No ship had ever followed that course before, and the men were not certain that they would ever again see their homes. You can imagine, therefore, their great joy when they heard one morning the cry of "Land! Land!" from the sailor stationed on the lookout far above the deck of the admiral's vessel.

We can scarcely realize how eager the sailors were to land and to explore the country, for they had been for seventy-one days upon the ocean. You have already guessed that the brave admiral was Christopher Columbus. Now that they had reached land in safety, the sailors were glad that their leader had refused to turn back, and they eagerly took possession of the new country for Spain.

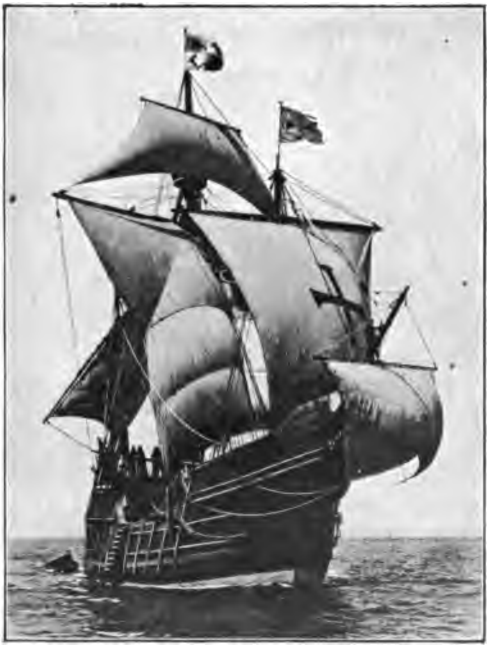


Fig. 1.—"The Santa Maria" One of Columbus' Ships.

The land which Columbus discovered was the Bahama Islands, lying a little to the east of Florida. The island upon which he landed is now called Watling Island, but Columbus named it San Salvador. After a short stay the ships were headed southward, and Cuba and Haiti were discovered. Although he was so close to the mainland of North America, the great discoverer did not find it. Believing that he had found a part of India, Columbus called the islands the *Indies*, and the people *Indians*.

This event is generally spoken of as the discovery of America, although it is believed that Norse explorers landed on the New England coast several hundred years earlier. They formed no permanent settlements, however, and their voyages were not repeated.

People laughed at Columbus when he told them that he could reach India by sailing west from Europe, for at that time few believed the earth to be round. So there was much surprise when Columbus returned to Europe and told his king and queen of the discoveries which he had made. He made three other voyages to America, and explorers from different countries in Europe quickly followed. It was not until 1607, however, that the first permanent white settlement was established in America. This was at Jamestown, Virginia, and was the work of the English.

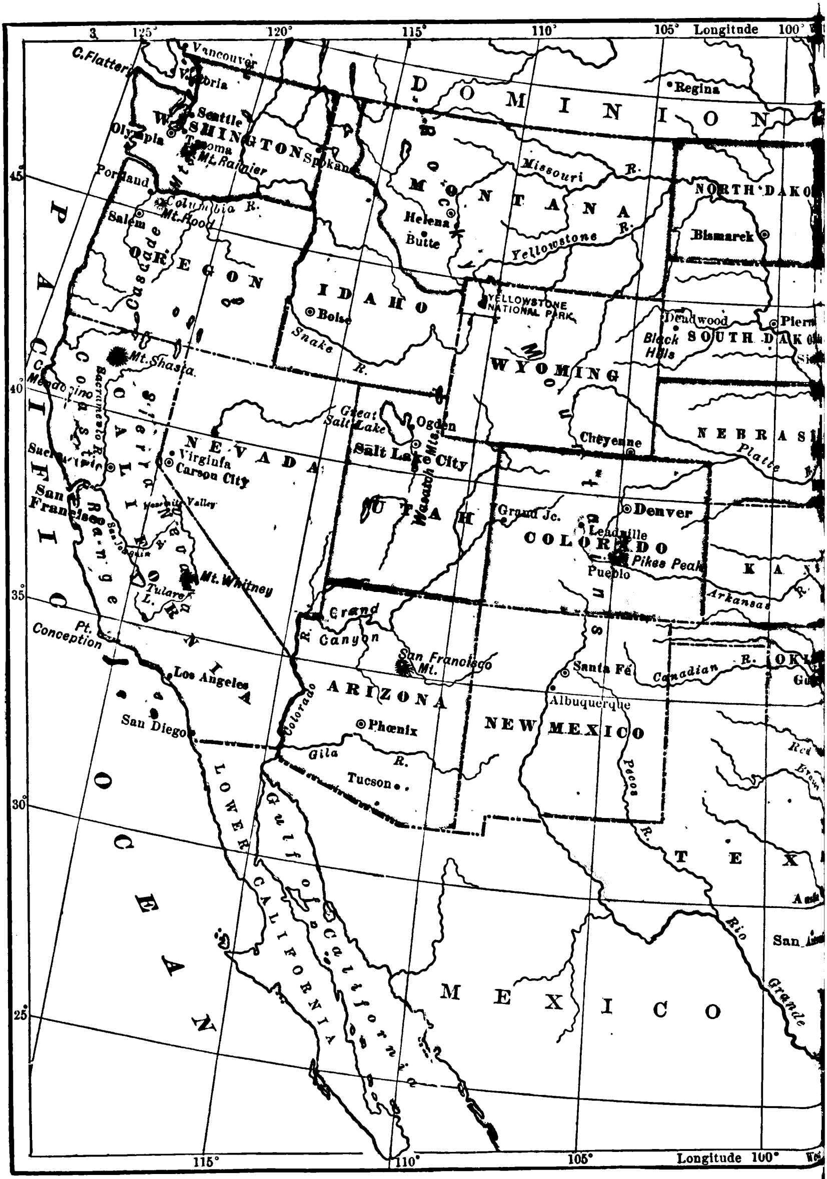
Had Columbus landed on this continent, and traveled from the Atlantic to the Pacific, and from Mexico on the south to the Arctic Ocean on the north, what a wonderfully different country he would have seen from that which meets the eye of the traveler to-day.

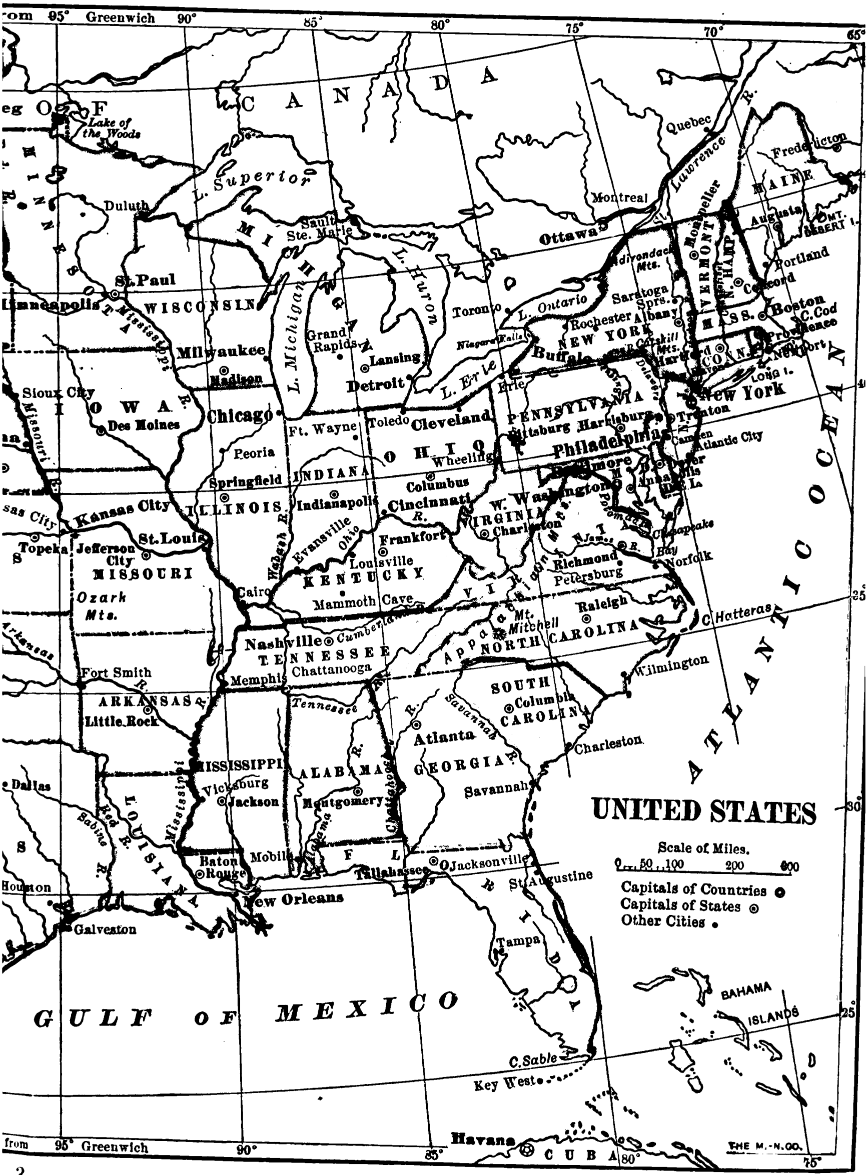
The hills and the mountains, the lakes and the rivers, were much the same then as now, but the hand of man has wrought many changes during these four centuries. Where Columbus would have seen vast, dim-lighted forests, giving shelter to countless savage beasts, there are now cultivated farms and busy cities. The great deserts, with their shifting sands, that to Columbus would have been impassable, are in part converted into orchards and gardens.

The original owners of the soil, the Indians, who would probably have disputed the right of Columbus to journey across their land, have nearly all vanished before the white man. Countless buildings of lumber, brick, and stone now take the place of the bark hut or skin wigwam of the red man.

Across the plains and over the mountains, trains rush upon their tracks of steel, carrying passengers or freight from city to city. Where the birch-bark canoe of the Indian glided quietly over the waters of lake or stream, great ships are now seen. Some of these carry sails spread to the breeze, and some are driven by steam.

Stretching westward from the Atlantic Ocean for a distance varying from a few to about three hundred miles is a plain called the *Atlantic Coastal Plain*. In New


3
125°
120°
115°
110°
105°
Longitude
100°
45°
40°
35°
30°
25°
115°
110°
105°
Longitude 100°
C. Flattery
Vancouver
Victoria
Regina
D O M I N I O N
Seattle
WASHINGTON
Olympia
Tacoma
Mt. Rainier
Spokane
Portland
Columbia R.
Mt. Hood
Salem
OREGON
Cascade Mts.
Missouri R.
MONTANA
Rocky
Helena
Butte
Yellowstone R.
NORTH DAKO
Bismarck
IDAHO
Boise
Snake R.
YELLOWSTONE NATIONAL PARK
WYOMING
Mountains
Deadwood
Black Hills
Pierre
SOUTH DAK
Mt. Shasta
C. Mendocino
Sacramento R.
Coast
Sierra Nevada
CALIFORNIA
Great Salt Lake
Ogden
Salt Lake City
Wasatch Mts.
NEVADA
Virginia
Carson City
Yosemite Valley
Cheyenne
NEBRAS
Platte
Sacramento
San Francisco
Range
San Joaquin
UTAH
Grand Jc.
Denver
Leadville
COLORADO
Pikes Peak
Pueblo
KA
Arkansas R.
Tulare L.
Mt. Whitney
Pt. Conception
Grand Canyon
R.
San Francisco Mt.
Santa Fé
Canadian R.
OK
Los Angeles
ARIZONA
Albuquerque
San Diego
Colorado
Phœnix
NEW MEXICO
Gila R.
Tucson
Pecos R.
Red
Braz
PACIFIC OCEAN
LOWER CALIFORNIA
Gulf of California
T E X
San An
Rio Grande
M E X I C O


UNITED STATES
Scale of Miles.
0 50 100 200 300
Capitals of Countries
Capitals of States
Other Cities
95° Greenwich 90° 85° 80° 75° 70° 65°
CANADA
Lake of the Woods
L. Superior
L. Michigan
L. Huron
L. Ontario
L. Erie
Niagara Falls
St. Lawrence R.
Quebec
Fredericton
Montreal
Ottawa
Toronto
Duluth
Sault Ste. Marie
St. Paul
Minneapolis
MINNESOTA
WISCONSIN
Mississippi R.
Milwaukee
Madison
MICHIGAN
Grand Rapids
Lansing
Detroit
Sioux City
IOWA
Des Moines
Missouri
Chicago
Peoria
Springfield
ILLINOIS
Ft. Wayne
INDIANA
Indianapolis
Toledo
Cleveland
OHIO
Columbus
Cincinnati
Wheeling
Erie
Buffalo
Rochester
NEW YORK
Albany
Saratoga Sprs.
Adirondack Mts.
Catskill Mts.
VERMONT
Montpelier
N. HAMP.
Concord
MAINE
Augusta
Portland
Mt. Desert I.
MASS.
Boston
C. Cod
Providence
Newport
CONN.
Hartford
New Haven
Long I.
New York
Trenton
Camden
Atlantic City
Dover
Annapolis
PENNSYLVANIA
Pittsburg
Harrisburg
Philadelphia
Baltimore
Washington
W. VIRGINIA
Charleston
VIRGINIA
Richmond
Petersburg
Norfolk
James R.
Potomac R.
Chesapeake Bay
Delaware
Kansas City
Topeka
Jefferson City
St. Louis
MISSOURI
Ozark Mts.
Cairo
Wabash R.
Evansville
Ohio
Louisville
Frankfort
KENTUCKY
Mammoth Cave
Nashville
Cumberland
TENNESSEE
Chattanooga
Memphis
Appalachian Mts.
Mt. Mitchell
NORTH CAROLINA
Raleigh
C. Hatteras
Wilmington
SOUTH CAROLINA
Columbia
Charleston
Atlanta
GEORGIA
Savannah R.
Savannah
Arkansas
Fort Smith
ARKANSAS
Little Rock
Dallas
Sabine R.
Red R.
LOUISIANA
Mississippi
MISSISSIPPI
Vicksburg
Jackson
Baton Rouge
New Orleans
Houston
Galveston
Tennessee
ALABAMA
Montgomery
Alabama
Chattahoochee
Mobile
FLORIDA
Tallahassee
Jacksonville
St. Augustine
Tampa
C. Sable
Key West
Havana
CUBA
BAHAMA ISLANDS
ATLANTIC OCEAN
GULF OF MEXICO
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. 3.

England this plain is narrow and not well adapted to agriculture, but farther south the fertile soil and the mild climate make farming profitable. On the southern part of the plain, rice, sugar cane, cotton, tobacco and fruits are grown. Name the large cities located on the Coastal Plain.

West of the plain the Appalachian Mountains extend in several rounded ridges parallel to the coast. For many, many years the settlers did not cross these mountains. They are not very high, but in those days they were heavily timbered, and savage beasts as well as Indians made their exploration dangerous.

As time went on, passes were discovered, and trails and rough roads built over the mountains. Even to-day the mountains are not densely populated, for the land is unsuited to farming. Nor are any large cities found in this section, because the construction of railroads across mountains is expensive. The Appalachian Mountains are very valuable, however, for there is yet much timber upon their slopes. Far below the surface of the earth, in mines to which no sunshine ever penetrates, men toil day after day taking out the coal that we use to warm our houses, to operate mills and factories, and to run our trains and steamships. Other mines yield iron, and from these mountains flow the tiny rivulets which unite to form streams that furnish water power and float ships.

West of the Appalachian Mountains there is another plain, called the *Great Central Plain.* It is much more extensive than the Coastal Plain, for it extends to the Rocky Mountains on the west, and from the Gulf of Mexico to the Arctic Ocean. The extreme northern part of the Great Central Plain is a land of snow and ice. There are neither farms nor forests, and only the Eskimo, clad in his suit of fur, lives in this dreary region.

Great fields of wheat and corn are found in the central part, because it is much warmer than the north, and the soil is fertile. The level prairies make it easy to cultivate the land and to ship the products of the soil to the great cities where they are needed.

The southern part of the plain borders on the Gulf of Mexico and joins the Coastal Plain. Here, again, we find the fields of cane, the cotton plantations, the marshy rice lands and the tobacco farms.

Let us now examine the western part of this great plain. After passing the one hundredth meridian we notice that there is much less cultivated land than there is to the east of it. Farmhouses are farther apart, and there are fewer towns. This is because the region receives little rainfall. These *high plains*, as they are often called, are well adapted to grazing, and there are many great cattle ranches here. The high plains are being rapidly improved, however, through " dry farming " and irrigation.

Leaving the high plains, we enter another division of our country, the Rocky Mountains. These are very much higher than the Appalachian Mountains, some of their peaks being snow-covered even during the summer. The railroads that cross these mountains wind along the streams that flow from them, so making use of the easiest grades. In some places the roads seem to cling to the mountain sides, great cliffs towering on one hand, while far below on the other a stream dashes over its rocky bed. In these mountains mining and cattle raising are the chief occupations.

The western slopes of the mountains lead down to a great plateau. As there are mountains on the west of this plateau also, it receives little rain. In fact, much of the central and southern part is a desert. Here the sand drifts before the wind almost as snow does, and it piles up in mounds and small hills called *dunes*. Only a few forms of plant life can find sufficient moisture. Some of these have hard, leathery leaves and sharp spines, like the *cactus*, for example.

One may travel for many miles in this thirsty land without seeing grass, trees, streams or houses. Here and there some of the land has been *reclaimed*, that is, irrigated by means of the water that is led from one of the few streams. This makes it possible to produce large crops, for the land can be watered as often as necessary.

In the central part of this great plateau is a large body of salt water called Great Salt Lake. It is several times as salty as the ocean. In fact, one cannot sink in the waters of this lake. Much salt is obtained by evaporating the lake water.

Beyond the plateau are other systems of mountains, the Sierra Nevada, the Cascade, and the Coast Ranges. Locate these mountains. On the western slope of the Sierra Nevada and the Cascade are great forests where lumbering is carried on. There are many beautiful lakes and streams in these mountains, and on some of the highest peaks glaciers are found. The Sierras yield millions of dollars' worth of gold each year. It was the discovery of this precious metal in January, 1848, which caused the first great rush of people to California.

The central valley of California lies between the Sierras and the lower Coast mountains. This valley is rich in grains and in fruits of many kinds. The Sacramento and the San Joaquin rivers drain it, and they unite before they flow into the bay upon which San Francisco is situated.

Far to the northwest is the great peninsula of Alaska with its immense glaciers, its fur seals, its salmon fisheries, its gold mines and its interesting Eskimo people. Alaska, although more than ten times as large as New York State, has few inhabitants, because so much of the land is unproductive.

North of the United States is the Dominion of Canada. Its surface features are similar to those of the United States, for it has highlands in the east, a plain in the center, and higher mountains in the west. Its climate is of course colder than that of our country, and it has no great burning desert.

Canada has very valuable fisheries along both her eastern and western coasts, and her forests produce much lumber. Upon her fertile plains wheat is grown extensively, and countless cattle are pastured in the section just east of the Rocky Mountains. Her western mountains yield gold and other minerals, and their beautiful scenery attracts people from all parts of the world. For a long time Canada has been an important fur-producing country, and while the fur-bearing animals are not so numerous as they once were, many men make their living to-day by hunting and trapping.

In the southern part of our continent are Mexico and Central America. Everywhere in these countries, except upon the tops of the highest mountains, the climate is hot, for they lie chiefly within the torrid zone. Coffee, tobacco, cocoa, rubber and bananas are some of their products. In addition, Mexico is one of the most important mineral regions in the world.

As you see, different parts of our great continent differ in appearance, in climate, in products, and in people.

In the chapters that follow we shall learn more about the different sections of our land, the industries of the people, and how they live in city and country. We shall also learn that the development of a region or a city, as well as the occupations and customs of the people, depends in large measure upon the conditions or *environment* by which they are surrounded.

CHAPTER II

NEW ENGLAND

New England is a small but very important part of the United States. The area of the entire section is not much greater than that of the single state of Illinois. New England has many large and busy cities, however, and almost every article, from needles and pins to locomotives, is manufactured there.

The scenery in New England is beautiful. In the west are the Green Mountains, which extend from Vermont southward. In Massachusetts they are called the Berkshire Hills. Farther east are the White Mountains of New Hampshire. In these mountains are many beautiful lakes and streams beside which thousands of city people rest in camp and cottage during the summer months.

The mountain slopes are not very steep, and therefore wagon roads and railroads have been constructed, making it easy for people to reach the resorts. Mount Washington, the most lofty peak in these states, is sometimes called "The Crown of New England." Both a rail and a wagon road extend to its summit.

The mountains are well wooded, and there is some lumbering carried on in them. In the White Mountains there is a mass of rock called the "Old Man of the Mountain" because it resembles in appearance the face of a man. Hawthorne wrote a very interesting story of this natural wonder which he called "The Great Stone Face."

Between the White and the Green mountains are the longest river and the largest valley in New England. What cities are on this river? In this valley, as well as in the smaller ones and on the Coastal Plain, there are many small farms, for there are no great stretches of level land such as are found in the Mississippi Valley. Grain, hay and potatoes are raised on these farms, and in addition much garden truck, to supply the markets in the cities. Dairying is also extensively carried on. St. Albans, Vermont, has one of the largest creameries in the world, having a capacity of ten tons of butter per day.

On some of the sandy land near the coast, as on Cape Cod, cranberries are grown. These are gathered in the fall, and are shipped to all parts of our country.

If you were to visit these farms, you would, in many cases, find stone walls instead of fences separating the fields, and you would also see great piles of rocks which the farmers have gathered from their land. These bowlders were left by the great glacier when it slowly crept down from the north thousands of years ago, and covered New England with a mantle of snow and ice.

Because of the forests, hills and mountains, as well as because of the bowlders strewn over the country, agriculture is not so extensively carried on in New England as in Illinois or Iowa. Much of the food used is shipped in from other parts of the United States and from other countries.

THE STONE QUARRIES

Perhaps you have heard that New Hampshire is called the "Granite State." In this, and in the other states of New England, granite abounds. It is a durable rock, and is therefore much used in building. The process of getting this and other kinds of rock from the earth is called *quarrying.*

Many of the granite quarries in New England are close to the coast. Some are on islands along the coast of Maine. This is important, because the stone can be shipped by water very cheaply. There are granite quarries near Quincy, Massachusetts, and from these came the stone from which Bunker Hill Monument was made.

Marble is a softer stone than granite, and is more valuable. There are great deposits of this rock in Vermont near Rutland and Proctor. Besides being used to some extent in building, it is also used in the making of monuments and statues. Some of the finest marble used for this purpose comes from far-away Italy.

Slate is another useful rock found in New England. This rock is made from particles of mud deposited upon

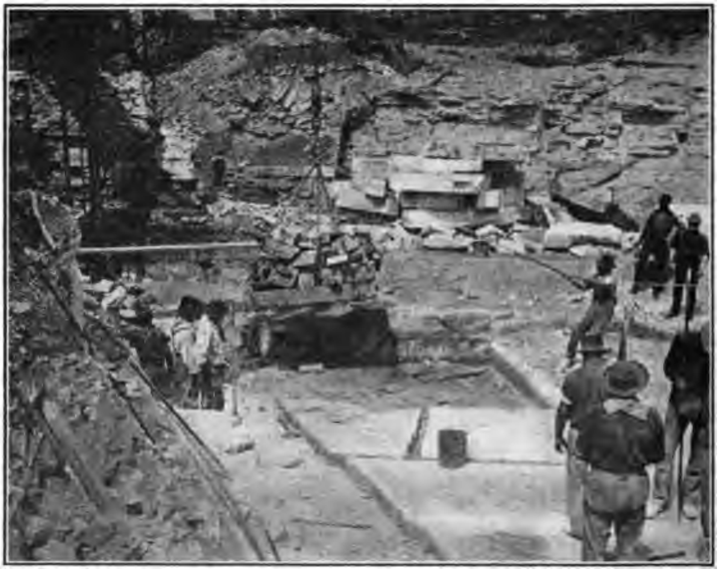

FIG. 4. — A Stone Quarry.

the bottom of the ocean, bound together by a cementing substance, and then greatly changed by heat and pressure. Because slate breaks into very thin layers, it is sometimes used in place of wooden shingles. Years ago it was used in making slates for school use, but comparatively few slates are in use to-day. Sandstone is a valuable building material, and some of this is found in the valley of the Connecticut River. New England does not produce gold, silver, copper, lead, zinc or iron, and only a very little coal, therefore mining is not an important industry in this section.

LUMBERING

When the *Mayflower* landed on the coast of Massachusetts in the year 1620, most of the country was covered with forests. Before the settlers could plant crops, the trees had to be cut down and burned so as to clear the land. The homes of the people were houses made of logs. Later, lumber was used in building ships for fishing and for commerce, and much was shipped to Europe. Because of the abundance of timber, and its nearness to markets, lumbering has always been an important industry in New England.

Maine, called the "Pine Tree State," has more timber than the other states in the group, although New Hampshire and Vermont have much forest land. White pine, spruce, hemlock, maple, hickory, birch, beech and poplar abound. Lumbering begins in the early winter, when the workmen go into the woods and establish a camp. This generally consists of a cabin called a *bunk house,* in which the men sleep, one in which meals are served, and a blacksmith shop.

After the trees have been felled, and their branches cut off, they are loaded on to sleds and drawn to the bank of some near-by stream. Here the logs remain until the ice thaws in the spring, when they are rolled into the water. They are floated down the river to some town or city situated on a waterfall. Here the power is used to saw the logs into boards, scantlings, planks, shingles and other forms of lumber. There are sawmills at Augusta, Lewiston, Auburn, Biddeford and Saco.

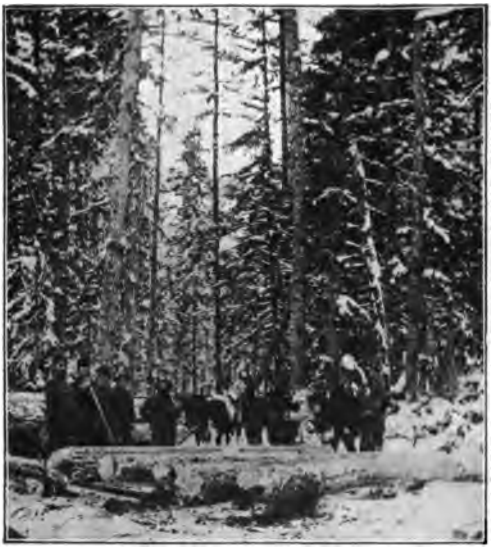
FIG. 5. — Lumbermen at Work in Winter in the Woods of Maine.

The logs are not left to themselves as they journey downstream, for if they were, they would be a long time in reaching their destination. They occasionally lodge against rocks and along the banks where the water is shallow. On this account men called *drivers* follow the logs, and by means of long poles having spikes at one end, they push or pull them out of their lodging places and send them on their journey down the river.

Sometimes, in spite of all that the men can do, the logs collect in great numbers, forming what are called *log jams.* Breaking up these jams is exciting and dangerous work. The men must go out on to the logs, although they roll under their feet, occasionally throwing the workers into the icy water. If it were not for the spikes in the soles of their shoes, the men could not jump from log to log without frequent accidents. If the jams cannot be broken up in any other way, dynamite is exploded among the logs.

Often several companies float timber down the same stream, but as each company has its own mark upon one end of each log belonging to it, they can easily be picked out. From the sawmill towns the lumber is shipped to many parts of the United States and to Europe as well. Bangor is the great lumber market of New England.

In New England there are many cities where boxes, barrels, paper, wagons, buggies, spools, matches, toothpicks and many other things are made from wood. Although there is yet much timber in these states, and in other parts of our country, we are using it much faster than it grows. Unless we are very careful not to waste it, there will be little left in twenty-five years. Much attention is now being given to the preservation of our forests, and to the replanting of forest trees.

IN A SUGAR BUSH

Among the many forest trees of New England is the hard or sugar maple. From the sap of this tree maple sirup and maple sugar are made. In the spring, before all of the snow has melted, men go into the woods and tap the trees. This is done by boring a hole in the tree, and driving in a spout of galvanized iron to which a pail is hung. During the day the sap trickles out and runs into the pail. During the colder hours of the night the sap flows slowly, if at all. Sometimes it is so cold that little sap runs for two or three days at a time.

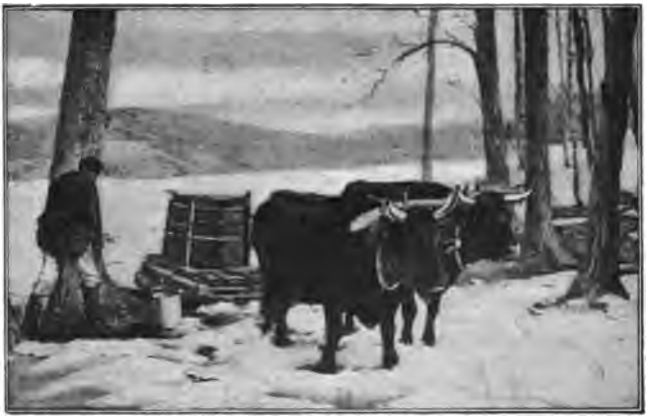

FIG. 6. — Oxen hauling Sap.

The sap is collected in barrels and drawn on sleds to the camp or place where it is to be boiled down. This is done in great pans called evaporators, which may be five or six feet wide, and fifteen feet long. They are divided into sections which are connected by means of little openings.

The sap flows into one end of the evaporator and follows a zigzag path through the different sections. By flowing slowly over so large a surface, evaporation goes on rapidly, and the sap is changed to sirup by the time it has finished its journey.

The sirup is put up in cans, or boiled down into sugar which is molded into small cakes, and sells at a high price.

"Sugaring off," as the boiling down of the sap is called, is quite an event. Often a number of people will be invited to go to the sugarhouse and take part in the operation.

Before the modern evaporator came into use, "Sugaring off" always occurred at night. This was necessary, because during the day the sap buckets had to be attended to. The young people would sing songs, tell stories, and eat sugar.

Some of the "sugar bushes" number but a few trees, and some have one or two thousand or even more. A tree will yield from one to six pounds of sugar during a season.

In the early days the New England farmers got a part of their regular supply of sugar in this way. To-day maple sugar is chiefly used because of its peculiar flavor, which is much liked by most people. There is little pure maple sugar on the market now, as it is commonly mixed with cheaper brown sugar. Vermont is the most important of the New England states in the production of maple sugar.

FISHING

New England is important, not only for what is produced upon the land, but as well for what is obtained from the ocean. The map shows you that the coast line is very irregular. The many bays offer safe places for anchoring boats, and on some of these bays fishing towns have been established. In the waters offshore are many kinds of fish that are valuable as food, such as mackerel, halibut, herring, cod, haddock and pollock. In addition, there are lobsters along the coast. Therefore fishing has long been an important industry.

The city of Gloucester is a little northeast of Boston. It is the greatest fishing center in our country, employing about 400 vessels. If you were in this city in the early morning, you would see fishermen going to their boats in the harbor. The anchors are drawn up, and the boats with their sails spread skim out to sea, appearing almost like a flock of white-winged birds.

Sometimes the boats go out but a few miles from shore, and return the same day with their catch. Many, however, go as far as the Grand Banks, east of Newfoundland, while some go to the shores of Greenland, Iceland and Ireland. On these trips the fishermen are gone for weeks. Instead of being paid a certain amount for their work, the men generally have a share in the proceeds of the catch.

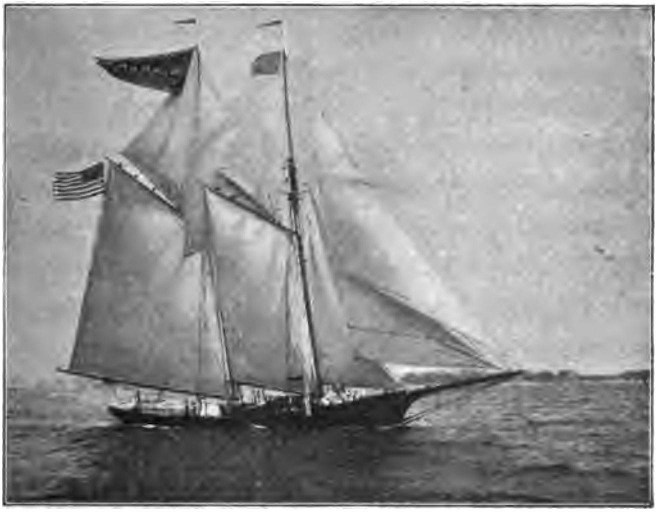

FIG. 7.—A Fishing Schooner.

Great numbers of codfish are caught by a method called *trawl* fishing. This may be carried on miles from the shore. How do you suppose it is done? To a very long and strong line, many shorter ones, each with a hook at the end, are attached. These lines, to which large buoys are fastened, are left in the water for several hours, and then fishermen in flat-bottomed boats called *dories* row out from the schooner and get the fish from the lines. The hooks are then reset and the fish taken to the schooner to be dressed.

Many of the fish are packed in ice and sold fresh, while others are cured on the boats or on shore. Some of the fishing schooners carry great quantities of salt when they start out on a trip. The fish are dressed and packed in this.

Codfish are dried in great quantities along the New England coast by placing them on frames made of strips of wood and raised a little above the wharf, so that the air can circulate freely. When the skin and bones are removed and the flesh cut into strips, it is called "shredded" codfish.

In addition to Gloucester, Portland, Boston and Provincetown are very important fishing centers. Locate each of these places.

When storms arise, the fishermen are often in great danger. The white-crested waves run rapidly before the angry wind, dashing high against their boats, and the wind howls through the rigging. The vessel reels now this way and now that, and sometimes water sweeps across the deck, but the sailors stick manfully to their posts. After such a storm there are happy hearts in the cottages of the fishermen when one by one the boats sail safely into harbor carrying no signal that some brave man has been lost at sea.

MANUFACTURED GOODS

The most valuable of the products of the New England states are those that are manufactured. From Pennsylvania and other near-by states coal and iron are obtained. The many short but swift streams furnish a great deal of water power. Many cotton, woolen, and other kinds of mills have been built beside the falls and rapids in these streams.

Boston, being a large city, manufactures many kinds of articles. Among these are cotton, woolen, leather and rubber goods, liquors and jewelry. In addition, sugar is refined, chocolate and candy made, coffee roasted and ground, spices ground and packed, and countless numbers of books published.

New England has a large number of cities that are important as manufacturing centers. Among them are Lowell, Manchester, Lawrence, Nashua, Biddeford, Lewiston, Taunton and Fall River, where cotton goods are made. As you see, several of these cities are located upon the Merrimac River from which they derive much power which is used in manufacturing. Although not a pound of cotton is grown in New England, this is the chief cotton manufacturing section in our country. Some of the cities just mentioned, as well as Providence, Woonsocket and Fitchburg, make woolen goods.

A large part of the boots and shoes made in the United States come from New England factories. Lynn and Brockton, the two most important centers, are known as the "shoe towns." Some of the leather used comes from our own country, and some from South America.

Wood pulp is used in making paper, and there are many paper mills in New England. There are paper mills at Berlin on the falls of the Androscoggin River. In the city of Holyoke, on falls in the Connecticut River, paper is made from rags.

BOSTON

While New England has many large cities, Boston is the largest and most important. One year after the Pilgrims landed at Provincetown, a little company sent out by them visited the peninsula upon which the city of Boston now stands. At that time the Indians were the only inhabitants. They called the peninsula *Shawmut,* meaning sweet waters. In 1630 a town was founded and called Boston, in memory of a town of the same name in England. In 1634 William Blackstone, who had settled on the peninsula two years after the Puritans visited it, sold all the land with the exception of six acres for $150.

When the glacier retreated from this part of our country, it left several low hills, now called *drumlins.* On these the city was built. Beacon Hill, upon which the State House is situated, received its name because beacon or signal fires were lighted upon it when there was danger of an Indian attack. Across the bay in Charlestown is the Bunker Hill Monument. This great shaft of granite, thirty feet square at the base and 220 feet high, marks the spot where the battle of Bunker Hill was fought.

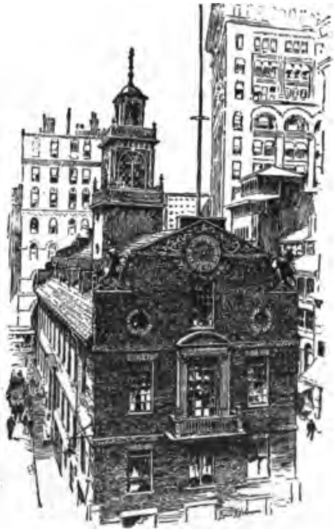

Fig. 8.—Old State House, Boston.

The harbor of Boston, like that of New York, is large, well protected and deep. On the east side of the peninsula, as well as in East and South Boston, are many wharves. Much of the raw material shipped by water to New England reaches Boston, while great quantities of New England's manufactured goods leave through this port. Railroads bring goods to Boston from all parts of the country, and in turn distribute those brought to the city by water. Boston is the second seaport in importance in the United States.

The people who founded Boston were brave, progressive and religious. Two years after the settlement was established, they built a church, and three years later the first free school was opened. Boston has always been a center of learning and refinement. Because of this the city is called the "Hub of the Universe" and the "Athens of America."

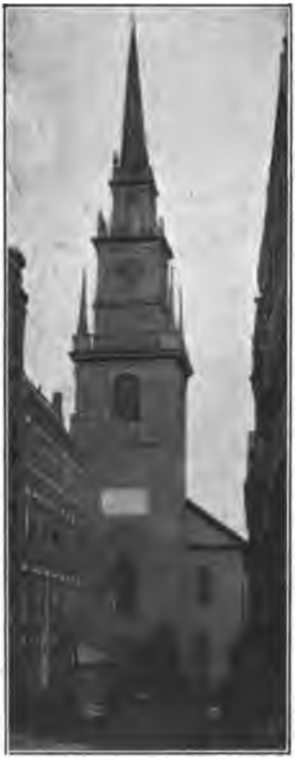

Fig. 9. — Old North Church, Boston.

Many events, very important in the history of our country, took place in and near Boston, and one may yet see buildings which were erected before the Revolutionary War began. The Old South Meeting House, built in 1727, is now used as a museum. But a short distance away, and on the same street, is the old State House, which was built in 1748. From the balcony of this building, facing State Street, the Declaration of Independence was proclaimed. The Boston Massacre occurred but a few feet east of the structure.

Faneuil Hall is called the "Cradle of Liberty" because in those stirring days before and during the Revolutionary War so many important meetings were held in it. Another building of great interest is the birthplace of Benjamin Franklin. But of all the old buildings in Boston, perhaps Christ or North Church will interest you most because from its belfry Paul Revere caught the gleam of the lanterns which started him upon his famous midnight ride.

CHAPTER III

THE METROPOLIS OF THE NEW WORLD

THE Dutch ship, the *Half Moon*, commanded by the English navigator Henry Hudson, sailed into New York harbor and up the Hudson River in 1609. At that time London, Paris, Berlin, Vienna and other cities of Europe were important places. To-day on the island which Hudson found covered with trees, and inhabited by Indians, is located the metropolis of the New World. Although so much younger than the cities mentioned, New York now ranks second in size among the cities of the world.

The Dutch purchased Manhattan Island from the Indians for the sum of $24. This was at the rate of $1 for each 1000 acres of land. The settlement which the Dutch established on the island was named New Amsterdam, after Amsterdam in Holland. In 1664 the English took possession of the town and called it New York in honor of the Duke of York, who afterward became James II of England.

The first American geography, published in 1784, has this reference to New York City: "A want of good water has been a great inconvenience to the citizens; there being but few wells in the city. Most of the people are supplied every day with fresh water conveyed to their doors in casks, from a pump at the head of Queen Street, which receives it from a spring almost a mile from the center of the city. The water is sold commonly at threepence per hogshead at the pump." This gives you some idea of how much the conditions in New York have changed since those times.

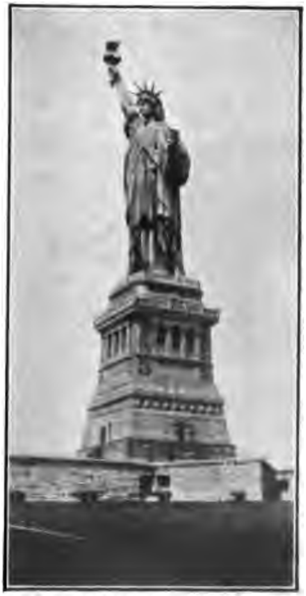

Fig. 10.—Statue of Liberty.

If you were on a ship approaching New York, you would first enter the lower bay, and then passing through the *Narrows* enter the upper bay. On your left, situated upon Bedloe's Island, is the Statue of Liberty. At night the light which the figure holds aloft is a welcome signal to sailors many miles away. A little farther northward is Ellis Island, where immigrants are detained until the immigration authorities decide whether or not they are desirable citizens.

The harbor of New York, large enough to accommodate hundreds of vessels at once, was formed by a sinking of the land. The water is deep, making it possible for large ships to enter, and the map shows you that the bay is well protected. This same sinking of the land deepened the water in the Hudson, changing it into what is called a *drowned river*. Because of this it is navigable as far northward as Albany. These conditions have had much to do with making New York our largest city and most important seaport.

As your ship approaches the wharf where you are to land, a most wonderful scene presents itself. Countless boats from all parts of the world are loading and unloading their cargoes, while many passenger ships are waiting for their dates of sailing. Across the Hudson, which leads northward from the city, boats of all sizes are hurrying with both freight and passengers. Beyond the wharves and docks the great buildings tower until they seem to pierce the sky.

Before you are permitted to leave the wharf, an official, called a *customs inspector*, will examine your baggage. Most goods are cheaper in European countries than they are in the United States. If people were allowed to bring these goods into our country without paying for the privilege, it would discourage their manufacture at home. Because of this, each person is permitted to bring in but one hundred dollars' worth of articles free of duty. These goods must not be for sale

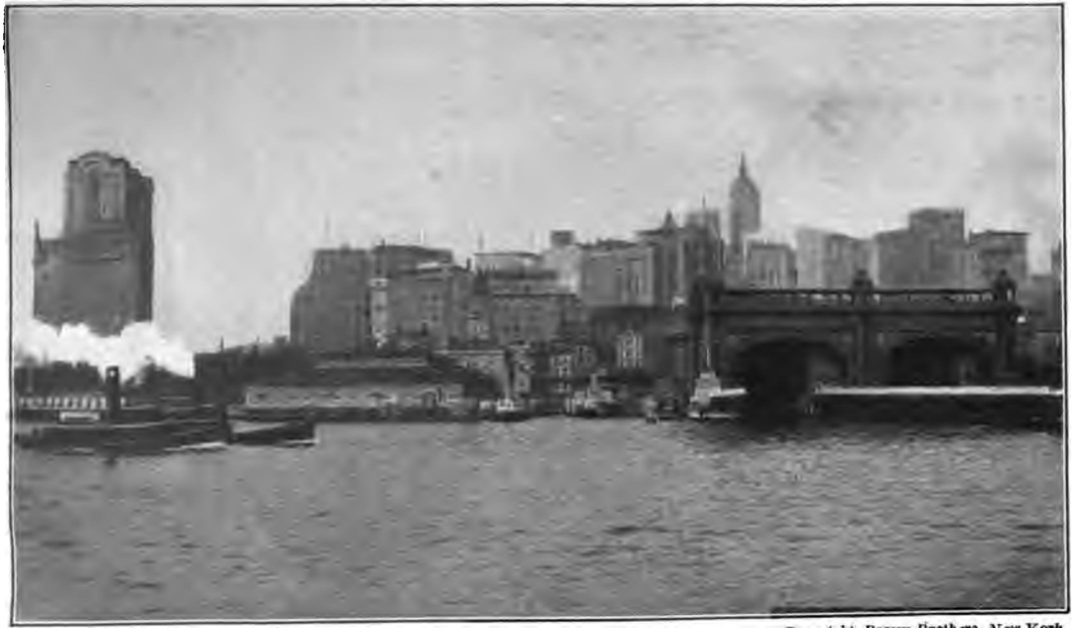

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FIG. 11.—A View of New York City.

or be used in business, and they must be properly declared. The duty varies according to the nature of the goods.

The great business houses are in the lower part of the city. The streets seem narrow because the buildings rise to such a great height on both sides. Some of them are more than twenty stories in height, while the Metropolitan Life Insurance Building is fifty stories high.

In addition to the surface street cars there are elevated railroads and underground roads. All day long and far into the night the streets are filled with cars, busses, drays, carriages and pedestrians.

Most of the foreigners who come to America land in New York, and many of them remain there. The people of a given nationality generally settle in the same quarter. Hundreds of thousands of foreigners live in the East Side in crowded tenement houses.

In the south end of the city there are some buildings that are very interesting because of their historical associations. One of these is Fraunce's Tavern, in which George Washington bid farewell to his officers at the close of the Revolutionary War. It is difficult to realize as you stand before this building that the first President of this country ate and drank within its walls.

New York was the first capital of the United States, and when Washington went there to be inaugurated as President in 1789, he traveled in a coach drawn by four horses. At that time the city was small, and much of Manhattan Island was still covered with trees. The streets were few and narrow, and after rains were very muddy.

From the south end of the city we can cross to Brooklyn, on Long Island, by means of the Brooklyn Bridge, over one mile long. This was opened in 1883. Other bridges connect the two cities, and there are tunnels under East River. Since 1898, Brooklyn, called the "City of Churches," has been a part of New York.

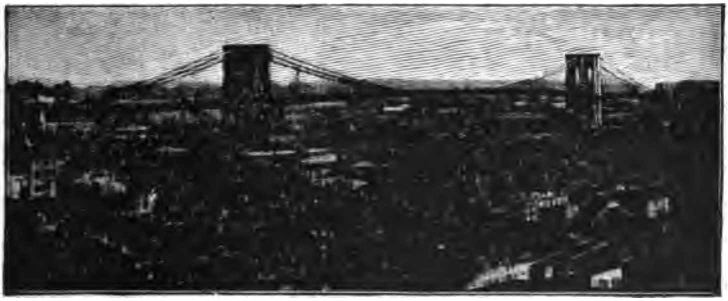

FIG. 12. — The Brooklyn Bridge.

New York is a great manufacturing center, having nearly 20,000 establishments of various sizes. The most important class of goods manufactured is clothing. The commerce of this city is greater than that of all of the rest of the seaports of the United States combined. Because of its manufacturing and commerce, New York is a great money center.

The map will show you that it is not easy for railroads to enter New York. The Hudson River has not been bridged, and so most of the railroads terminate in Jersey City in New Jersey. The Pennsylvania Railroad has tunnels under the river, and, as you have been told, ferryboats go to and fro day and night. The New York Central and Hudson River Railroad enters the city along the east bank of the Hudson.

Thousands of people who do business in the downtown district live in Brooklyn, in Jersey City, or in the residence sections to the north of the business quarter. Costly homes dot the east bank of the Hudson for many miles. In summer the views to be obtained from the drive along the high, tree-covered bank of the stream are most beautiful. Boats carrying manufactured goods northward, and others bearing lumber, grain and other raw products southward, are frequently seen. Now through the openings in the foliage we catch a glimpse of some graceful yacht.

It was upon this busy stream that the first steamboat was run. Its inventor was Robert Fulton. The boat, called the *Clermont*, made a trip to Albany in August, 1807. Its speed was but five miles per hour, but this was considered to be fast traveling.

Supplying food, drink and other necessaries to the people of such a large city is a great task. We have told you of the water supply in early days. It now comes from an immense reservoir called Croton Lake, some thirty miles away. Although the supply of water obtained from this source is enormous, it will not long be sufficient. This is to be increased by water obtained from the Catskill Mountains, but it will take several years to complete the construction of the works.

A little north of Albany, the state capital, the Mohawk flows into the Hudson. The fertile valley of the Mohawk produces great quantities of food which are shipped to New York. Grains, fruits, vegetables, butter and cheese are some of the things supplied. This valley offers an easy road to the Great Lakes and the central part of our country. The Erie Canal connects with the Hudson near Albany, and thus is formed a great waterway with Buffalo at one end and New York at the other. Much of the development of the central part of the state and the growth of New York City are due to the canal. To-day eighty per cent of the people and ninety per cent of the wealth of the Empire State are found along the Hudson River and the Erie Canal.

The first railroad in the state was built along the route of the Erie Canal in 1826. The road, which was but eighteen miles in length, connected Albany and Schenectady. The rails were of wood, and were covered with iron bands. This was the beginning of the great New York Central Railroad.

When you see the name "Troy Laundry," you may think of the city of Troy, six miles from Albany. One third of the total population of this city is employed in making collars, cuffs, shirts, laundry machinery, and in the work of laundering.

At Cohoes, situated on falls in the Hudson just north of Troy, is manufactured about one third of the hosiery produced in our country. Gloversville and Johnstown, two towns in the Mohawk Valley, make more than one half of the leather gloves and mittens used in the United States. Rochester makes great quantities of boots, shoes, clothing and flour. Buffalo, on Lake Erie, is one of the great grain markets of the world. These are a few of the cities of New York State whose trade is connected with that of New York City.

Another roadway leads north from the junction of the Hudson and the Mohawk past Lake George to the Adirondacks and along the shore of Lake Champlain to the St. Lawrence. The Adirondack Mountains furnish much lumber, and the towns surrounding them manufacture great quantities of wood pulp. These products go to New York City, as do lumber from Canada, and marble from Vermont.

You now feel somewhat acquainted with the city of New York, and you understand some of the reasons why the Dutch settlement called New Amsterdam has become the metropolis of the New World.

CHAPTER IV

THE KEYSTONE STATE

KINGS, as well as common people, have sometimes had difficulty in paying their debts. One of our greatest cities, and the state in which it is situated, owe their foundation to this fact. More than two hundred and fifty years ago an English king, Charles II, owed his vice admiral, Sir William Penn, a sum of money. As the admiral never succeeded in collecting what was due him, he bequeathed the debt to his son William.

Young Penn was no more successful than his father had been in getting the money from the king. But if Charles lacked money, he had vast tracts of land in America, and Penn told him that he was willing to take some of it in payment of the debt. He had worked out a plan to establish a home for the Quakers where no one would molest them because of their religion or social customs. Finally the king granted a great tract of land extending five degrees west from the Delaware River.

The Latin word *silva* means wood or forest, and as there was much timber in Penn's new possessions, he decided to call the region *Silvania*. The king changed the name to Pennsylvania. In 1681 three shiploads of people sailed for the new colony, but Penn did not go until the next year. It is said that soon after his arrival he made a treaty with the Indians under a great elm tree.

A little more than one hundred miles from where the Delaware River enters the ocean, it is joined by the Schuylkill. Just north of the junction, and on the bank of the navigable Delaware, was established the city of Philadelphia, which means the "City of Brotherly Love." Unlike old New York and Boston, the streets run at right angles, this being the first American city to be built according to a plan. Some of the streets are narrow, however, and on these the cars run in one direction only.

The houses are very commonly built of red brick, and many of them in the older portion of the city are so close to the sidewalk that there is little or no room for lawns. There are fewer tenement houses in Philadelphia than in most large cities. Since so many of the people live in their own houses, Philadelphia is sometimes called the "City of Homes."

The water of the Delaware is sufficiently deep at Philadelphia to admit ships, and they come from all parts of the world. Canal, river and rail bring to the city the products of her own state. These are iron, coal, oil, gas, lumber, wool, grain, vegetables and fruits.

Cotton, sugar, rice and fruits come from our Southern states. From the Great Central Plain grains and meats are shipped. Coffee, rubber and nuts from Brazil are seen upon Philadelphia wharves. The Argentine Republic sends hides, and India and China, tea and silk.

In the seaward part of the Coastal Plain the rocks are softer than they are in the western part. Streams cut or *erode* more rapidly in soft than in hard rocks. Because of this, falls are developed where the Delaware and other rivers pass from the harder to the softer material. The line which joins these falls is called the *Fall Line.* Being located upon this line, Philadelphia naturally becomes a point of reshipment.

These conditions have caused Philadelphia to become a great seaport, as well as a very important manufacturing center. Because of the iron and the coal, ships, cars, engines and machinery are manufactured. The Baldwin Locomotive Works, the largest in the world, are located here. The cotton from the South and the wool from the West are made into clothing. Carpets are manufactured more extensively than in any other city in America. The sugar shipped from the South is generally in a raw state, and there is much refining done here. There are many other industries carried on in Philadelphia. Although her population is more than 1,500,000, one sixth of this number work in factories.

Early Philadelphia was very different from the Philadelphia of to-day. The laws were very strict. For example, people were fined twenty shillings for working on Sunday. For smoking upon the streets at any time there was a fine of twelvepence. Men were publicly whipped for certain offences, and in order to make the disgrace as great as possible, they were given a few lashes on each of several days.

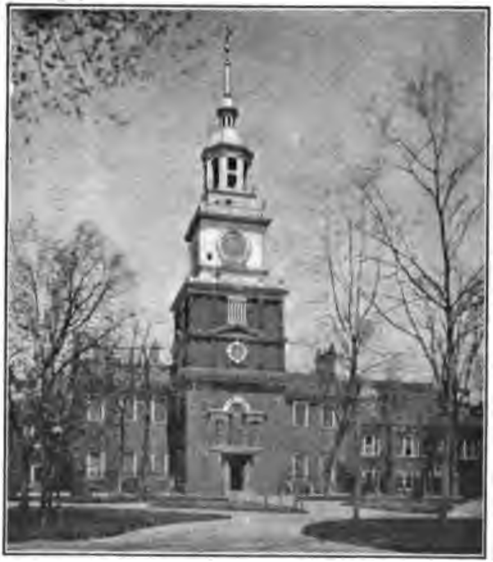

FIG. 13. — Independence Hall.

On the spot which Penn selected as the site of the "Towne House" the present City Hall stands. It is one of the largest and finest public buildings in America, having cost about $25,000,000. On the tower, more than five hundred feet from the ground, is a statue of the founder of the city.

Independence Hall and Carpenter's Hall, buildings in which much of the history of our country is centered, are still standing. In Carpenter's Hall the First Continental Congress met, and the Second Congress met in Independence Hall, where the old Liberty Bell still hangs. Here, before and during those terrible days when the mother country was at war with her children, Patrick Henry and others made stirring speeches. In the east wing of the hall the first Supreme Court of the United States convened, while in the west wing met our first Senate and House of Representatives. In the park in front of the building is a statue of Commodore John Barry. This man, who was born in Wexford, Ireland, in 1748, was the father of the American navy.

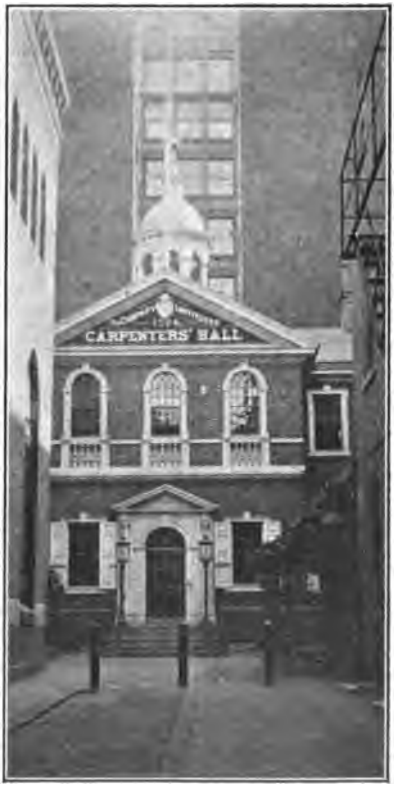

Fig. 14. — Carpenter's Hall, Philadelphia.

In Philadelphia the first daily newspaper, and the first magazine that appeared in our country, were published. Here also was the first circulating library, established through the efforts of Benjamin Franklin. The first American flag and the first American war vessel were made in Philadelphia, and here in 1876 the first world's fair was held, called the Centennial Exposition.

In colonial days Pennsylvania occupied a position similar to that of the central stone in an arch. Because of this, and because the other colonies depended greatly upon her support in the days before the Revolutionary War, Pennsylvania has been called the *Keystone State.*

The ranges and plateaus of the Appalachian highlands spread out over the central part of the state. The eastern slope is drained by the Delaware and the Susquehanna, while the Ohio and its tributaries drain the western slope. There is no broad, low valley making it easy to connect the Atlantic coast and the Great Lakes, as there is in New York State.

Before the days of railroads these mountains were a great barrier to travel between the East and the West. The Susquehanna, as you see, cuts across the mountain ridges, but it is not navigable. Transportation by water is always cheaper than transportation by land. This is shown by the fact that in these early times goods were often sent from New York to Pittsburg by way of the Hudson, Mohawk, Great Lakes and Allegheny River.

The first roads that crossed the mountains of Pennsylvania were of course wagon roads. Although the Susquehanna and its tributaries are not navigable, the roads usually followed the rivers. In this way the easiest grades were secured. One of these roads led from Philadelphia up the Susquehanna and its west branch, then to the Allegheny and the Ohio. Another reached the Ohio by way of the Juniata and the Allegheny. Farther to the south a road from Baltimore followed the Potomac Valley, and from this passed to that of the Youghiogheny, and so to the Ohio.

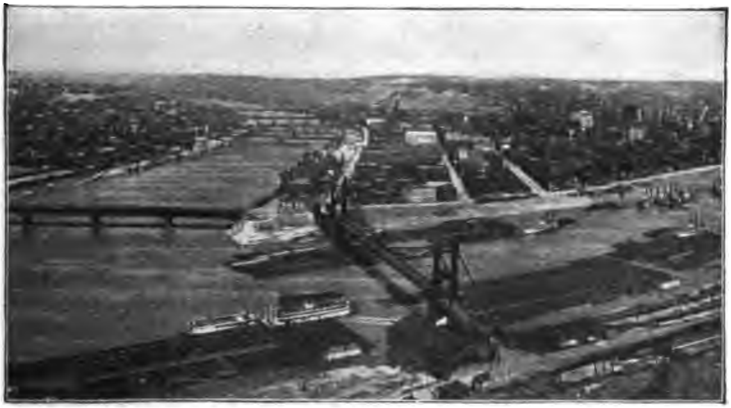

Fig. 15. — Two Streams, the Allegheny and Monongahela, uniting at the Great City of Pittsburg.

Now if you have traced these roads upon the map, you see that they all reached the point where the Allegheny and the Monongahela unite to form the Ohio.

This, in the early days, was the natural place for a fort. Here the French built Fort Duquesne. The English changed the name to Fort Pitt. As the country developed, the fort and the trading post became a city. To-day at this meeting place of roads and rivers, stands Pittsburg.

The valleys which guided the course of the pioneers and traders are now followed by railroads. Pittsburg will always be at the "meeting of the ways." Let us see how the situation of the city has led to its growth.

In the mountains of Pennsylvania are concealed great treasures. These are coal, iron, petroleum and gas. The coal mined yearly in this one state is worth more than all of the gold mined in the United States during the same time. Coal is floated on flat-bottomed boats called *barges* down the Allegheny and Monongahela to Pittsburg. It is brought in by rail, also. From here immense quantities are shipped down the Ohio, and so to the Mississippi.

Almost directly north of Pittsburg stands Erie, on the lake of the same name. Iron from the shores of Lake Superior is unloaded here, and sent by rail to Pittsburg. Oil and gas are abundant in the western part of the state. These conditions have caused Pittsburg to become one of the most important manufacturing centers in the world. Some of the manufactures are iron and steel to be used in building, steel rails, cars, machinery, tools, bolts, screws, nails and wire. Near by there is much sand such as is needed in making glass, and Pittsburg turns out great quantities of all kinds of glass. There are other cities in this vicinity that carry on the same industries. Allegheny, now a part of Pittsburg, Homestead, McKeesport and Braddock are some of them. None of these cities is so important, however, as is Pittsburg, the "Gateway of the West."

CHAPTER V

THE OYSTER INDUSTRY

It sounds strange to speak of farming in the ocean, but there are many and large oyster farms all along our coast. Some of these farms are covered by water all of the time, and some are uncovered when the tide is low. Oyster farms are far more profitable than are those upon which corn and wheat are raised.

Oyster fishing is a very ancient industry. As long ago as the seventh century, a Roman knight raised oysters for the market, and it was said that the business made him very wealthy.

Oysters are very generally distributed in the shallow water of the ocean near the shore. The most important oyster beds in the world are in Chesapeake Bay. There are thousands of acres in this bay known as "oyster rock." These are public grounds, and here any one who secures a license may fish with tongs during the open season. There are other grounds which may be rented on payment of one dollar per acre annually.

You will understand more about the cultivation of oysters, if you are told how they live and grow in their natural homes.

Except during the first few days of their lives, oysters are prisoners. They cannot move about freely from place to place as fishes and most animals can, but they are attached to rocks, to the shells of their dead relatives, and to other objects. How, then, do you suppose they get their food? They grow in immense numbers, and they crowd one another more than people do in the tenement houses in our great cities. In fact, most of them are soon crowded out, and they die, leaving room for the rest to grow upon their empty homes. In this way the oyster beds spread out.

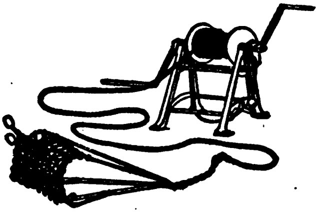
FIG. 16. — An Oyster Scraper.

Because oysters live in shallow water, they are often uncovered when the tide goes out. You can see from this that it is not very difficult to gather oysters, so that, partly on this account, man has used them for food for ages.

When the Pilgrim Fathers landed on the shores of New England, they found that the Indians made great use of oysters. All along the coast were great heaps of the shells. At the very first Thanksgiving dinner given in America, oysters were served.

Oysters used to be so plentiful on these natural beds that they were very cheap. In some places where the winter weather was cold enough to freeze the water along the shore, people cut holes in the ice and gathered them by means of long-handled rakes.

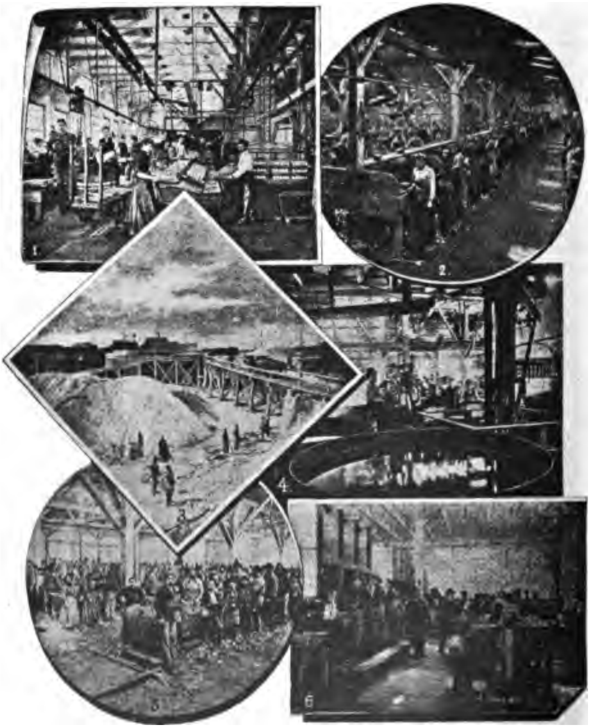

FIG. 17. — The Oyster Industry.

1. Packing oysters.
2. Raw shucking.
3. Burning oyster shells to make lime.
4. Cooking oysters.
5. Steamed-oyster shuckers.
6. Weighing and canning.

In a single year an oyster will produce more than a million young ones. Just think of it! If all of this family grew up, they would fill a room fourteen feet in each dimension.

The young oysters, which are very small, are called "spat" or "seed." Most of them are drifted away by waves and currents, or devoured by larger sea animals. The few that escape soon attach themselves to some object, so getting a chance to begin the battle of life.

If oysters are caught at all times of the year, it gives them no chance to produce their young, and this, as well as catching the young ones, has destroyed many of the natural beds. In order to keep up the supply of this food, men commenced oyster farming. You see how our daily needs and desires lead to the establishment of great industries.

The oyster farmer prepares his farm in various ways. He drops into the shallow water clean oyster shells, stones, trays, bundles of sticks, and other things, so that the oysters fasten themselves to these articles, and then puts in the seed or spat. When trays are used, several are placed one above another and bound together by means of a chain. These trays are taken up from time to time in order to gather the oysters that are ready for market.

Stones are sometimes used in the same way and the spat placed in the crevices between them. Another method is to drive stakes so that they make a circle.

Cords are attached to the stakes, to which bundles of sticks are fastened in such a way as to keep them a little above the bottom. Young oysters attach themselves to these sticks, which may be drawn up when the proper time comes.

Shells, however, are used more commonly than other things as a floor covering. They are collected from the restaurants and hotels and taken to the farms in boatloads, to be scattered over the bottom.

The Chesapeake Bay oyster farmer usually stakes off his land and divides it into *squares*. He then buys small oysters known as "seed" for about 25 cents per bushel. The fields are then *sown* by a man who stands in the stern of a boat and shovels out the oysters as evenly as possible. From 400 to 500 bushels of seed are sown to the acre. Different squares are planted each year so that there may be a harvest every season. The sowing is generally done in the fall, and harvesting about two years from the time of planting.

If the floor is too muddy, the oysters sink into the sediment and do not thrive. If it is too sandy, the grains of sand get into the shells and kill the oysters. The starfish is one of the greatest enemies of the oyster, large numbers of which it destroys every year.

Oysters are harvested during all months having the letter "r" in their names, and as these are chiefly the winter months, the oyster fishermen are exposed to some severe weather in carrying on their work. In very shallow water the oysters are caught by means of *tongs.* Hand and steam dredges are also used. A boat using a steam dredge may gather 1000 bushels of oysters in half a day. The forenoon is usually devoted to fishing and the afternoon to sorting the oysters.

As the oysters are usually in clusters, these have to be broken up. For this purpose a sort of a hammer known as a *culling iron* is used. The oysters are broken apart and sorted. Sometimes the oysterman makes three grades and sometimes four.

Oysters are not the only things drawn up in the dredge. Starfish, lobsters and various kinds of fishes are gathered in. The starfish are killed and the rest thrown back.

When the boats reach the wharf, the sacks and barrels of oysters are carried to the "shucking" room. Here negro shuckers open the shells by means of strong knives. They are paid about 20 cents a gallon for their work. After being strained and washed in fresh water, the oysters are put up in barrels holding 25 gallons each and shipped. Many, however, are shipped in their shells. The great center of the oyster industry in our country is Baltimore, situated on Chesapeake Bay. The industry is worth about $50,000,000 yearly to the city. Have you ever seen oysters that came from Baltimore?

Baltimore is one of our oldest and largest cities. It is located on the Patapsco River, about fourteen miles from where it enters Chesapeake Bay. Here the Coastal Plain is wider than it is in New England, and the climate milder. The valleys of the Susquehanna and the Potomac enable Baltimore to secure the coal and iron of Pennsylvania and West Virginia. This has caused it to become an important manufacturing center. Some water power is obtained, for Baltimore, like Philadelphia, is on the Fall Line. Several lines of steamships connect this city with Europe.

CHAPTER VI

THE HOME OF OUR NATIONAL GOVERNMENT

In every city in our land there is a body of men who make laws for that particular place. Such laws are known as *ordinances*. Each state in the Union has certain laws. These are made by men, elected by the people, who spend a part of their time in a city known as the state capital. What is the capital of the state in which you live? Similarly there are laws which apply to the United States. Every citizen must obey these laws, no matter in what state or city he lives. Our law-making body is called the Congress, and it consists of the Senate and the House of Representatives.

You know that George Washington was the first President of our country. He was elected to this office after the close of the Revolutionary War in 1789. New York City was selected as the first capital of the United States. You have been told that when Washington went to New York to be inaugurated, he traveled in a coach.

In 1790 the national capital was removed to Philadelphia, and on June 15, 1800, to what is now the city of

Washington. A location at the junction of the Potomac and the Anacostia rivers was chosen. One hundred square miles of land were surveyed, and the forest cleared from a part of it. Stones were set up at intervals of one mile along each boundary. When the first map of the proposed city was being prepared in the autumn of 1791, Mr. Ellicott, the engineer, asked the commissioners of the district what name he should place upon it. They answered, "The City of Washington, in the Territory of Columbia." The area is now called the *District of Columbia.*

Like Philadelphia, Washington was built according to a definite plan. Its growth was slow, however. An English traveler visiting it in 1839, said, "The town looks like a large straggling village reared in a drained swamp." Several years later than 1850 the water used in the homes was obtained from a street pump. To-day the home of our national government is one of the most beautiful cities in the world.

The Potomac Valley at Washington is wide, and has gentle terraces. Farther to the west the river flows in a narrow valley cut in hard rock. From the point where the valley widens to the coast, there are softer rocks. Where the Potomac flows from the harder to the softer rocks there is a fall which is one of the many along the *Fall Line.* Washington, like Philadelphia, is situated upon this line. Other important cities similarly situated are Baltimore, Raleigh, Columbia and Augusta.

The source of Washington's water supply is about seventeen miles from the city at the Great Falls of the Potomac. Power and light are also developed here.

Washington is neither a manufacturing nor a commercial center. It is a city of homes. As we go through the broad streets, we do not see vehicles and people crowding and rushing as in other large cities. There is an air of rest and quiet in the capital.

In Washington none of the streets are named for people, but are numbered or lettered instead. The avenues bear the names of states. Several of these radiate from the Capitol Building, which is situated upon a hill ninety feet high. In the north wing of this beautiful building is the Senate Chamber, while the Representatives meet in the south wing. Pennsylvania Avenue, the main business street of the city, is one hundred and sixty feet wide. It leads from the Capitol to the White House, more than a mile away. The White House has been the home of our Presidents for many years. It is a beautiful building of colonial architecture surrounded by trees and lawns, and contains celebrated paintings of our Presidents. In the famous East Room of the White House the President receives visitors at stated times.

There are many very interesting buildings in Washington. The Congressional Library is one of the finest in the world. Here must be placed a copy of every book upon which a copyright is desired. The Corcoran Art Gallery was established by a wealthy banker. The Smithsonian Institution, the Printing Office, the Mint, the various branches of the Department of Agriculture, the United States Naval Observatory and many other national institutions are located here. Every day, at exactly twelve o'clock noon, a signal ball drops from the flagpole on the dome of the chief building of the observatory. The news is flashed by telegraphy to all parts of the United States so that people may correct their time.

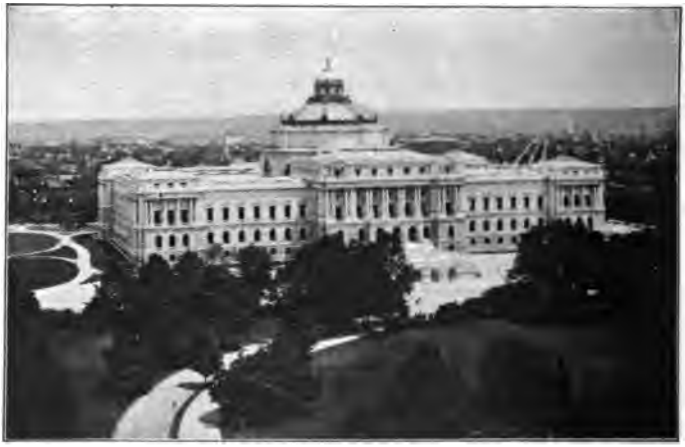

Fig. 18. — Congressional Library.

The Washington Monument is a great stone shaft 555 feet high. Compare the height of this with that of the Bunker Hill Monument. It was commenced in 1848 and completed in 1884. The top of the shaft, which is 34 feet square, is reached by elevator. As we stand here the whole city lies spread out before us. It appears like a forest, for trees line the streets and beautify the grounds about the homes and other buildings. These trees are oak, sycamore, silver maple, linden, ginkgo, a Japanese tree, and other kinds. In many places the branches meet above the streets. There are nearly 100,000 trees in Washington. Generally but one kind is found on a street. Massachusetts Avenue, the

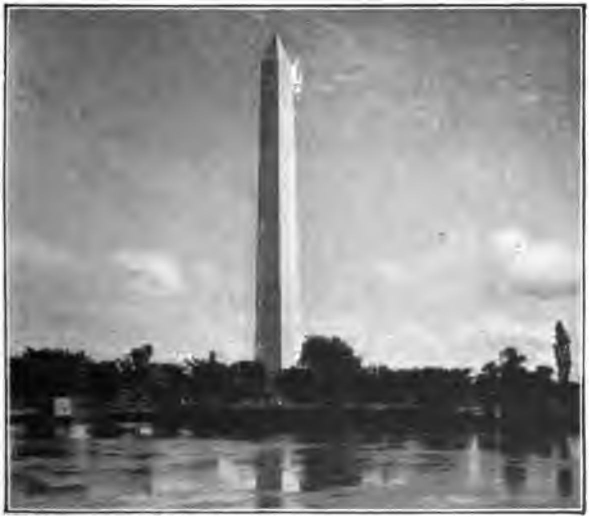

Fig. 19. — Washington Monument.

most beautiful residence street, has two rows of linden trees on either side. Since 1872 Washington has spent more than $500,000 in the purchase and care of shade trees.

The people who live in Washington pay taxes just as do residents of other cities, but they do not have the privilege of voting. They have no voice in the affairs of their own city. Three commissioners, appointed by the President, have the welfare of Washington in their hands.

Our national capital is a well-governed city. The streets are clean and well lighted. There is an excellent water supply, and the rate of taxation is low. Washington is the temporary home of a large number of representatives of foreign countries. Because of this, the residents of the city have an opportunity to learn a great deal of other countries and peoples.

For a few hours during the month of August, 1814, the British occupied our capital. They burned the White House and then retired. While our Civil War was in progress, the city served as a great camp and a hospital. Earthworks extended for miles around it. The churches were filled with sick and wounded soldiers. Wagon loads of bread were baked daily in the basement of the Capitol. Cattle were slaughtered and the meat prepared for use around the base of the unfinished monument.

A trip to Mount Vernon is full of interest, for this was the home of our first President, and here he was buried. The old mansion stands upon a bluff some 200 feet above the beautiful Potomac. From the wharf where our boat lands, Washington used to ship flour made on his own plantation.

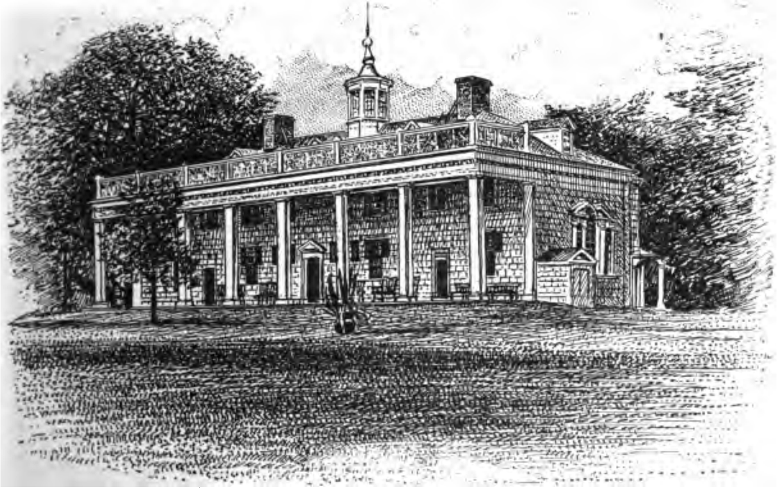

Fig. 20.—Mount Vernon.

A beautiful lawn and stately trees surround the home of Washington. The old furniture is still in the house. Here are the beds in which the members of the family slept. Some of them are so high that they were reached by means of one or more steps. The coach in which Washington rode when he went to New York to be inaugurated may still be seen, and the cabins in which Washington's negro servants lived are still standing.

But a few miles from Washington is Arlington, a national cemetery. This was formerly the plantation of General Robert E. Lee, and his beautiful home is now used as a national museum. More than 11,000 soldiers are buried in this place, which overlooks the capital of the nation for which they gave up their lives. Near the east entrance is a stone upon which we read: —

> "The neighing troop, the flashing blade,
> The bugle's stirring blast,
> The shout, the shot, the cannonade,
> The din of war are past."

Let us hope that war is forever past in this land of ours, and that the day may soon come when there shall be "Peace on earth, good will to men," in every land.

CHAPTER VII

THE SUNNY SOUTH

THE states stretching from North Carolina to Texas, and including Tennessee, Arkansas and Oklahoma, are generally spoken of as the Southern states. We sometimes call this great section of our country the "Sunny South." South Carolina, the smallest state in the group, is about as large as Maine, the largest of the New England states. Texas is larger than France or Germany, and is four times as large as all of New England.

The South has mountains and fertile plains. She has forests which yield turpentine, pitch and rosin, as well as lumber. In the gloom of the everglades, and other similar swamps, alligators abound. She has a large tract in western Texas where the rainfall is so scanty that only desert vegetation grows. The same state has a larger forest area than has any other state in the Union. The mountains of the South furnish stores of coal and iron, while they send to the sea many rivers which can be navigated, and which furnish power for manufacturing.

When snow covers the ground in the North, and streams and lakes are sealed with ice, many people journey to the Southland to remain until the return of spring. Severe frost does not often visit the lowlands bordering on the Gulf of Mexico. Here in midwinter one may enjoy bathing in the surf, or sitting beneath the shade of the live oaks from which festoons of moss hang, or inhaling the fragrance of roses and orange blossoms.

The products of a region depend, in large measure, upon its climate. Therefore the products of the Southern states are quite different from those of the North. Cotton, sugar, rice, tobacco, oranges, peaches and pineapples are some of the important crops.

COTTON

The United States is the greatest cotton-producing country in the world. The cotton belt extends from Virginia to Texas, but Texas is the greatest cotton-growing state. The seeds are planted in rows, and through the summer the plants are hoed and cultivated. When the cotton is ripe, the pods or *capsules* burst open, displaying the bolls of white fibers. In these are the seeds. A cotton field in which the pickers are at work is a very interesting sight. The plants hang full of the fluffy white bolls which are being gathered by the negro pickers. The crop is usually gathered by hand, for no picking machine that is really successful is yet in general use.

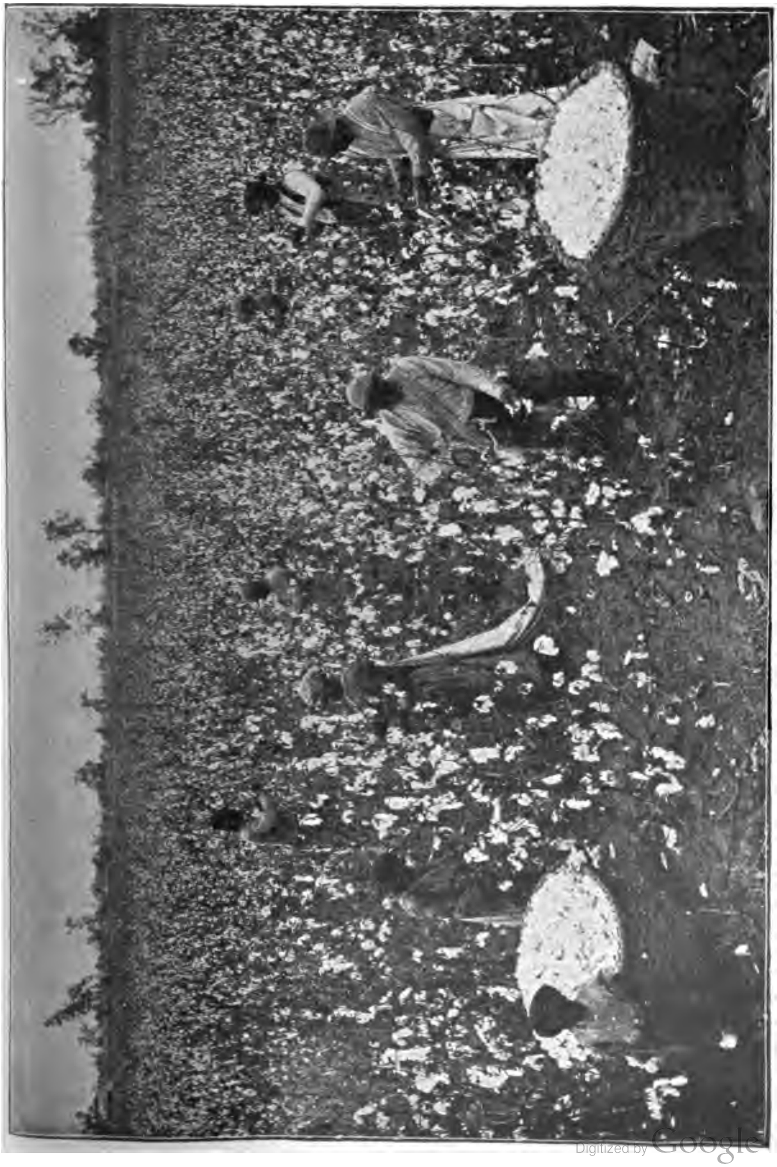

FIG. 22. — Picking Cotton.

A large cotton plantation is a busy place. The planter's home is usually large, and is surrounded by fine grounds. There are well-kept lawns, beautiful flowers and magnificent trees. Some of these, like the magnolia and the palmetto, do not grow in the Northern states. Near by are the cabins in which the workers live.

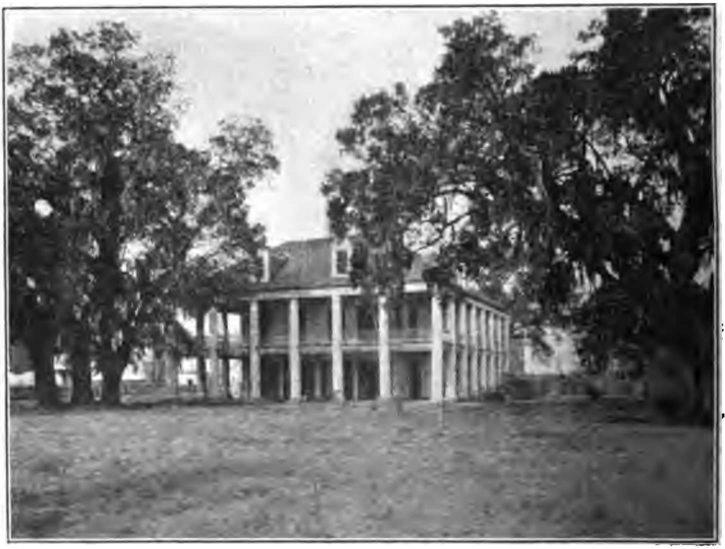

FIG. 23. — A Southern Home.

The fiber must be separated from the seeds before it can be spun. Before Eli Whitney invented the cotton gin in 1793, this work was done by hand. By this process a person could in one day pick the seeds from hardly more than one pound of cotton.

In order to make it easier to ship, the cotton is pressed into bales. The bales, which contain about 500 pounds each, are covered with coarse cloth, and bands of iron are then placed around them. Galveston is the chief cotton-exporting city of Texas. It is situated upon an island of sand some two miles from the shore in order to have deep enough water for large ships. A single-track railroad connects the island with the mainland, but a causeway is being constructed which will accommodate several tracks as well as a road for teams. A great wall of masonry protects the city on the seaward side.

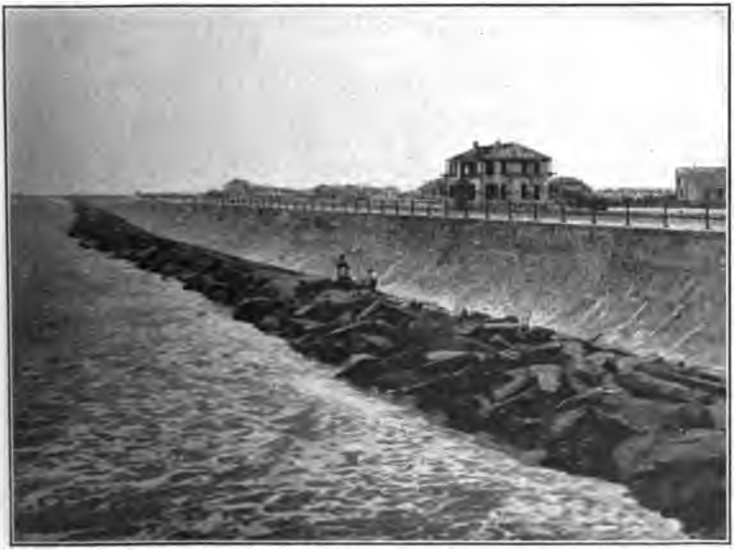

Fig. 24. — Sea Wall, Galveston, Texas.

This is necessary because of the destructive waves sometimes caused by hurricanes. Great quantities of cotton come down the Mississippi River to New Orleans, where it is placed upon ocean-going steamers. Mobile, Savannah and Charleston are other cities that export cotton. A great deal of it is shipped to the New England states, where it is manufactured. Large quantities are shipped to England, France and Germany, for these countries do not grow cotton.

In earlier days little cotton was used in manufacturing in the Southern states, but now there are busy mills at Birmingham, Atlanta, Augusta, Charlotte, Greenville, Columbia and other cities. Coal, water power, the raw material and skilled labor are close at hand, and therefore the number of cotton mills in the South is increasing rapidly.

SUGAR CANE

Another very important product of the South is sugar. Sugar beets are raised in various parts of our country, but sugar cane requires a warm, moist climate. A field of cane resembles a field of corn, though the corn is taller. The stalks are jointed as are cornstalks, and the spongy substance between the joints is filled with a sweet juice. It is from this juice or sap that cane sugar is made. We plant the seed of corn, but we do not plant the seed of sugar cane. Instead we plant pieces of cane called cuttings. These are placed in a trench so closely together that the ends of the cuttings join; then they are covered with soil. Almost as soon as the canes sprout, cultivation begins.

The cane is cut by hand and hauled to the mill by wagon or tram car. Here it is run between heavy rollers which squeeze out the sap. Sometimes as many as seventy-five pounds of sap are obtained from one hundred pounds of cane. The juice is heated, causing the water to evaporate. As a result of this process, molasses and brown sugar are obtained.

Some of the sugar produced in the South is sent to New Orleans to be refined, but larger quantities are shipped to Saint Louis, Chicago, Boston and other cities. In the refineries the raw sugar is dissolved in hot water, and the liquid then passes through a filter which contains burned bones known as *bone-black*. When the sirup comes out of this filter it is perfectly clear, and is then crystallized. Although the Southern states produce much cane sugar, we are compelled to buy a great deal from Cuba, the Hawaiian Islands and other parts of the world.

RICE

About one half of the inhabitants of the earth use rice as their chief food. On the lowlands in our Southern states there are great fields of rice. Although it is a grain, it will not thrive on our fertile Western prairies where corn, wheat and oats grow. It needs a warm climate, and a great deal of water.

Growing rice must be irrigated, and so the water from streams is led by means of canals and smaller ditches to all parts of the fields. The rice is irrigated from time to time until a few days before harvest. When full grown, the stalks are from one to six feet in height, with long, slender leaves. The kernels grow much as do those of wheat and oats.

Because the fields are so wet, rice is generally cut by hand.

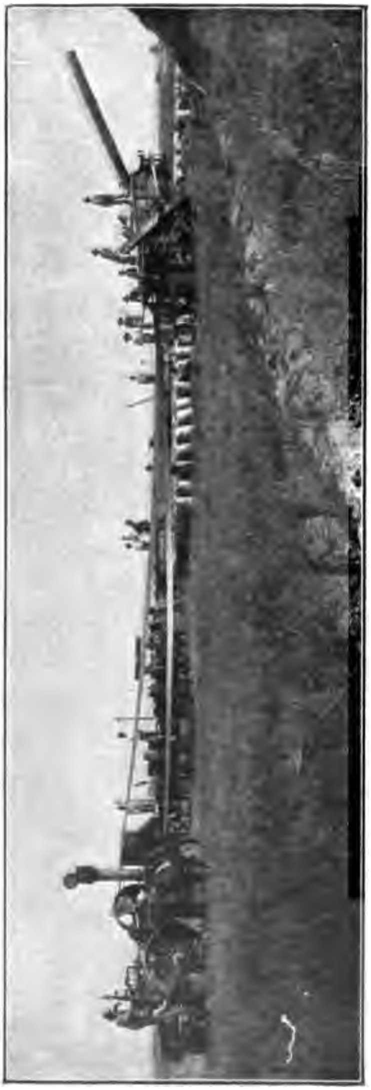

FIG. 25. — Threshing Rice on a Large Rice Plantation in Louisiana.

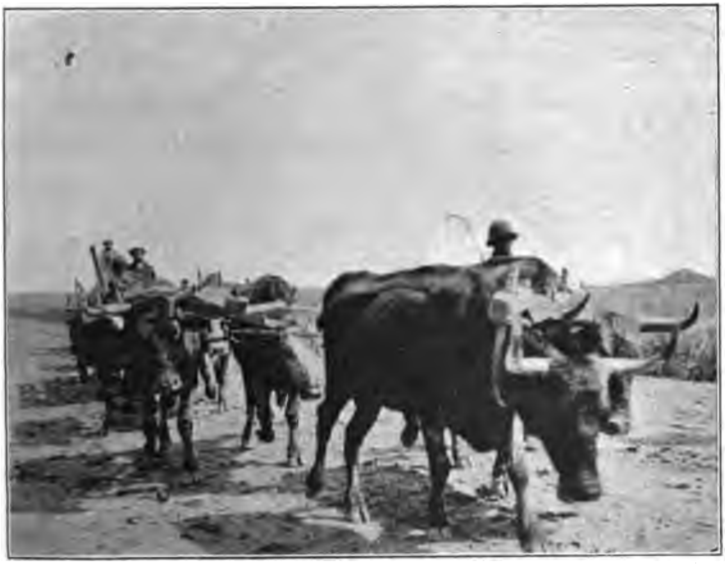

FIG. 26. — Oxen on a Southern Plantation.

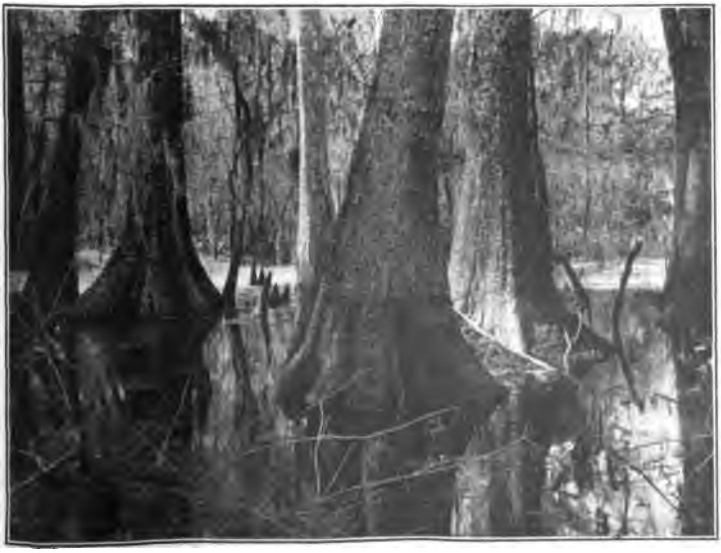

FIG. 27. — A Louisiana Cypress Swamp.

In Louisiana, and in some other parts of the South, harvesting machines having broad wheels are used. After being threshed, the grain is polished in rapidly revolving drums lined with leather. It is this polishing which gives the bright appearance to the kernels.

OTHER PRODUCTS

Cotton, sugar and rice are not the only important farm products of the South. In addition, there are tobacco, peaches, watermelons, strawberries and garden truck. In Florida oranges, lemons, grapefruit and pineapples are grown.

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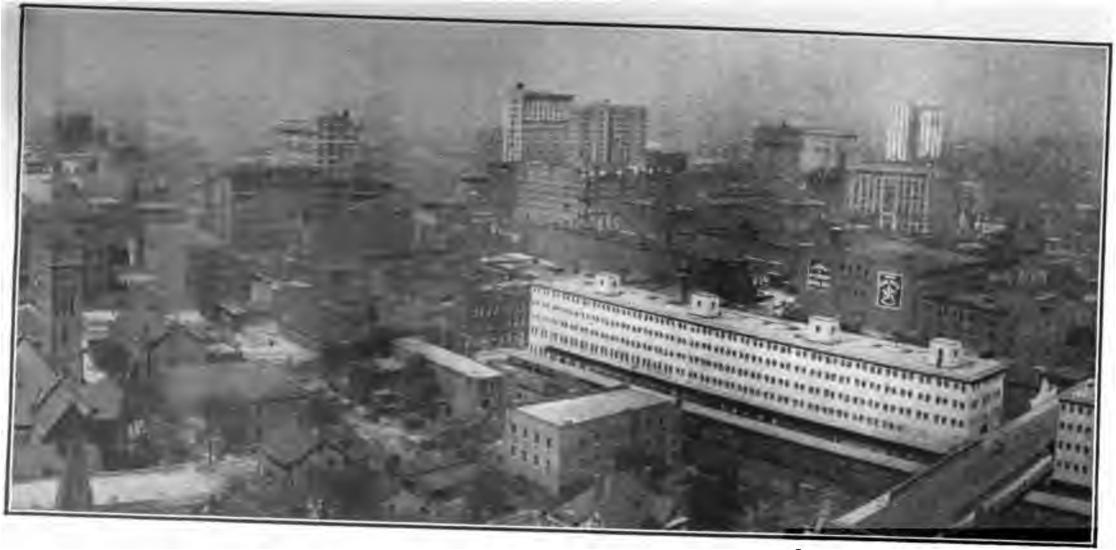
FIG. 28. — Birmingham, Ala.



Courtesy of Atlanta Chamber of Commerce.

FIG. 29. — View of Atlanta.

Formerly agriculture was the only industry in the South. This is not true to-day. Her forests yield much lumber. Her waters produce fish, oysters, turtles and sponges. Coal and iron are mined extensively, and water power is being developed.

Birmingham, Alabama, being situated close to coal and iron, is an important center for the manufacture of iron and steel goods. As already stated, cotton manufacturing is making wonderful progress. Railroad building is helping the growth of the country, and Atlanta is a railroad as well as a manufacturing center. No part of our country is making more rapid progress than is the Sunny South.

CHAPTER VIII

OUR EASTERN MOUNTAINS

WEST of the Atlantic Coastal Plain there is a system of mountains extending from New England to northern Georgia and Alabama. They are very different from most of our Western mountains. Their slopes are gentle, their peaks rounded, and they do not have deep, dark cañons. They consist of several ranges between which there are extensive valleys. The beautiful valley of the Shenandoah is situated between the Alleghany and the Blue Ridge mountains. It contains farms, orchards and a large number of towns and cities. Where the Shenandoah joins the Potomac is the historic town of Harper's Ferry.

In crossing these mountains by train we do not reach an altitude so high as that of Denver, and yet Denver is located upon the plains. Although these mountains are not very lofty, they have been and are of great importance in the development of our country.

The people who settled upon the eastern shore of North America remained for a long time upon the Atlantic Coastal Plain. Here there was enough land to supply their needs, and there were no roads and not even paths across the mountains. In addition, there was danger in penetrating them, for Indians held possession of their forest-clad slopes.

In the course of time, however, as the number of settlers increased, they needed the land beyond the mountains. Brave and hardy pioneers discovered the passes, blazed trails and led parties to the western slope. Railroads, following the windings of the streams, have now been built across our Eastern mountains, but they are less numerous than in the more level parts of the country.

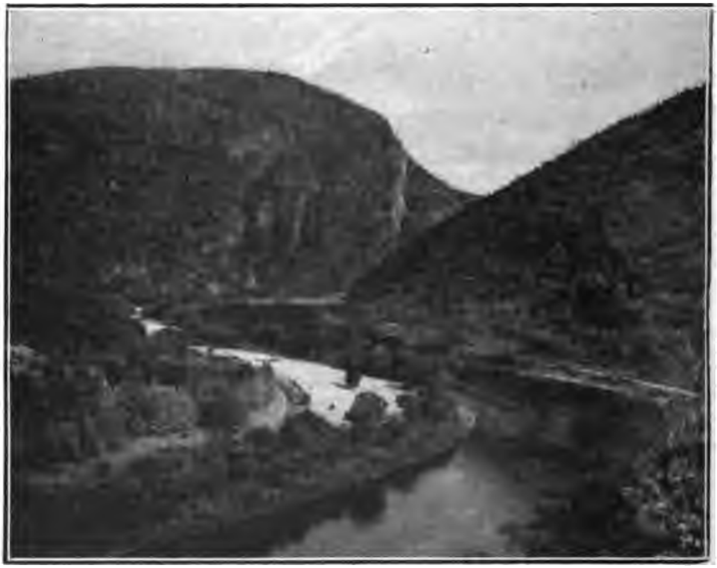


FIG. 30. — Delaware Water Gap.

The mountains are not well adapted to agriculture, and therefore the population is in most sections sparse. There are no large cities in the mountains as there are upon the Coastal Plain. There is still a great deal of timber upon the slopes of the Appalachians, and so lumbering is carried on. Some of these forests are of very valuable hardwood trees, such as oak, maple, hickory and walnut. Name articles made from the wood of these trees.

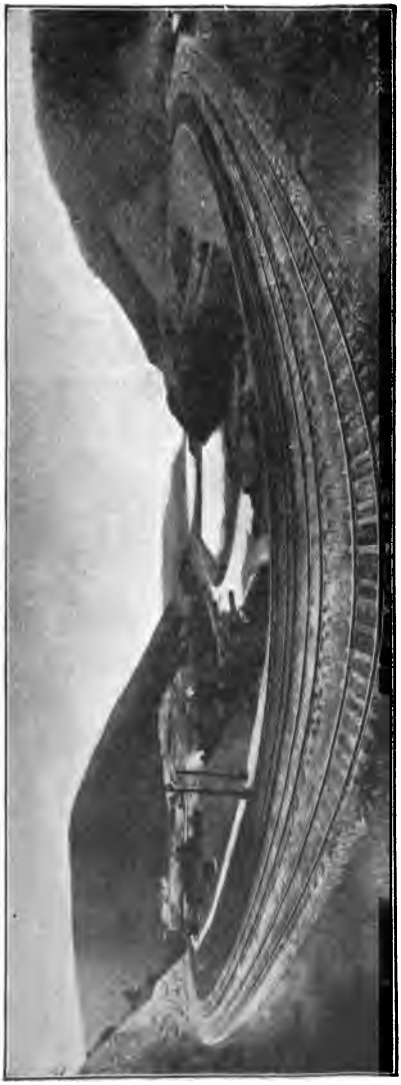


FIG. 31. — A broad horseshoe curve where the Pennsylvania Railroad ascends the steep grades in crossing the Appalachians.

So much of the timber has been cut from some of the slopes that the streams have eroded gullies and ravines. Great quantities of soil have been washed away and deposited in the lower courses of the rivers. This is a great loss to agriculture, and in addition it makes the rivers less navigable.

As you have already learned, many of the rivers which flow from these mountains furnish power. Mills and factories have been built upon their banks all of the way from Maine to Georgia. The more regular the flow of the streams, the more valuable they are for power as well as for navigation. As the cutting away of the timber makes the flow irregular, this is another reason why the forests should be preserved upon the mountain slopes. National forests are found here and there throughout the whole extent of the Appalachians, although but a small part of the total area is included within them.

As means of communication are more difficult in mountains than upon plains, the inhabitants of mountains are, to some extent, shut in from the rest of the world. For this reason they do not change their customs nor make use of new inventions as rapidly as they otherwise would. In some of the most inaccessible parts of eastern Kentucky and Tennessee and western North Carolina, people yet spin and weave their flax and wool, and make them into garments.

Because of the beautiful scenery, the fish and the game, the fine summer climate, and the opportunities for rest and pleasure, there are many resorts in our Eastern mountains. These have been established on the banks of streams, and on the shores of lakes. In some cases people spend but a few days, and sometimes they remain for weeks at hotels and camps.

In these mountains are found great deposits of coal, iron, petroleum and gas. In northern Alabama, and in Pennsylvania and West Virginia, there are very rich coal and iron mines. Railroads and canals follow the Delaware, Lehigh, Schuylkill, Susquehanna and Potomac valleys. By these routes the cities from New York to Washington receive great quantities of coal. By other rivers and roads it is sent to Pittsburg, and to points farther down the Ohio Valley. Large amounts are shipped westward from Erie and Cleveland by the Great Lakes. Vessels carrying 4000 or 5000 tons each transport it as far as Duluth. In addition, countless trainloads are sent to various parts of the country.

When the coal that we now dig from the mountains of Pennsylvania was being formed, there were great marshes and swamps there. In the marshes were gloomy forests in which there were giant ferns. Vines stretched from tree to tree, and creepers covered the ground. No human eye ever looked upon these dark forests, with their thick undergrowth, for man had not then appeared upon the earth.

As the trees and the other plants died, they fell into the marshes. Gradually the vegetation thus accumulated was covered with mud brought to the marshes by the slowly flowing streams. The mud pressed upon the vegetation and hardened it somewhat. In this way it was changed into a substance called *peat.*

The layers of mud which buried the peat deeper and deeper changed it more and more. In time it became a soft brown coal called *lignite.* The next step in the process resulted in *bituminous* coal. When the change had gone on still further, hard or *anthracite* coal was formed.

In 1814 twenty-two tons of anthracite coal were mined in Pennsylvania, and in 1822 the mining of bituminous coal began. Pennsylvania now produces more soft coal than any other state, while nearly all of our hard coal is mined there. Wilkesbarre and Scranton are in the anthracite belt.

Coal is a very common fuel in the home. Most of our manufacturing depends upon coal. The locomotives that draw our freight and passenger trains generally burn coal. Coal is the fuel on the great steamships that go from continent to continent. So you see it is not strange that lumps of coal are sometimes called *black diamonds.*

Coal mining is difficult and dangerous work. Explosions sometimes occur which cause great loss of life. Let us not forget that we owe much to the miners who work far down in the black mines of our Eastern mountains.

CHAPTER IX

OUR INLAND SEAS

FORMING a part of the boundary between Canada and the United States are the largest bodies of fresh water in the world. Each one of these lakes is several hundred miles long. In crossing any of them one is out of sight of land for some time. In their deepest parts Lake Superior and Lake Michigan measure about 1000 feet. Hundreds of vessels, some driven by the wind and some by steam, move to and fro over these lakes for several months of the year.

It is not the size of these bodies of water, however, but rather the character of the region lying about them, that makes them of so much value. Eight states and a part of Canada border upon the Great Lakes. Nearly all of this area belongs to the Central Plain, and so most of the land is quite level.

Ages ago the great glacier moved down over this part of our country. It hollowed out basins where the Great Lakes now exist, and it spread over the country a layer of fine, rich soil. This soil helped to prepare this area to be a great agricultural section.

Not only does this section have a level surface and fertile soil, but the climate is favorable to the growth of wheat, corn and oats. The winters are long and cold, but the summers are warm. The lakes never freeze over, and they therefore modify the climate on the windward side of them. That portion of Michigan directly east of the lake produces large quantities of peaches, while northern Illinois and Wisconsin do not, because the winters are too cold. Western New York State is a fruit-growing section, also. The region about the Great Lakes is well watered, and a considerable portion of the precipitation occurs while the crops are maturing.

These advantages make this one of the richest farming sections in the world. It produces about one third of the corn, one third of the wheat, and one half of the oats grown in the United States. In addition, there are large crops of hay and potatoes.

One of our great forest belts is found in this section. In Minnesota, Wisconsin and northern Michigan are extensive forests of pine, cedar and hemlock. In the southern part of this group of states is some hard wood.

These states have great mineral wealth. In the Lake Superior region there is much iron and copper. Some of the copper mines on the south shore of the lake are nearly a mile deep. In Illinois, Ohio and Pennsylvania are vast deposits of coal. Indiana, Ohio and Pennsylvania have oil and gas, while valuable building stones and clay are generally distributed.

Because of the level surface, the fertile soil, the favorable climate, the forests and the mineral wealth, these states have a large population. About one third of the population of the United States is found in these eight states. Many large cities have grown up upon the shores of our inland seas. Point them out. One of them is the second city in population in our country.

One hundred years ago the Indians roamed over much of our continent. On the fertile prairies, where now there are vast fields of grain and towns and cities, they chased the deer and the buffalo. On the banks of streams, and beside the blue waters of our Great Lakes, they established their villages. One of these was built where a sluggish stream, wandering across the flat country covered with prairie grass, emptied into Lake Michigan near its southern end.

The red men could paddle their birch-bark canoes up this stream, drag or carry them a short distance, and dropping them into the Des Plaines, continue their journey to the Gulf of Mexico if they wished. In fact, there were times during the spring when boats could be paddled all the way between Lake Michigan and the Des Plaines.

In time the wigwam of the Indian gave place to the log cabin of the trapper, the trader and the soldier. Slowly the little settlement grew, and then more rapidly. Now facing the level prairie on the west, and the blue waters of Lake Michigan on the east, stands Chicago, one of the most wonderful cities in the world.

The land around Chicago was very marshy. In the spring the roads were almost impassable. Very early in the history of the place a few men realized that a canal could be cut from Chicago to the Des Plaines and the Illinois rivers, thus connecting the Great Lakes with the Mississippi. A canal was opened in 1848, and a few years ago a much larger one was dug. This

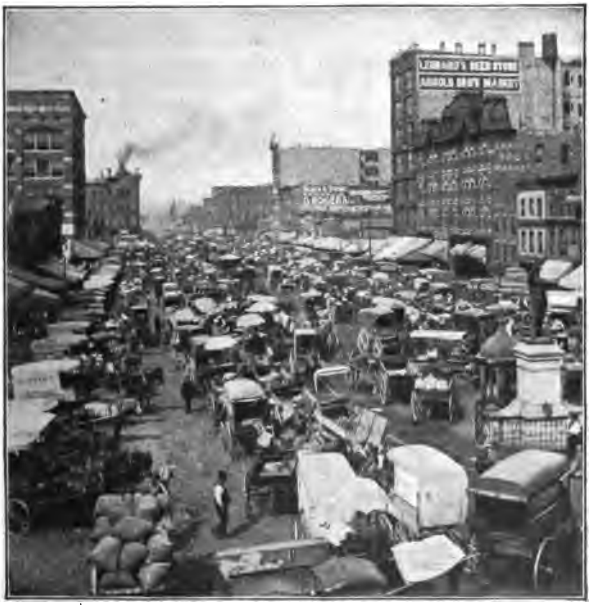


Fig. 33.—A Busy Chicago Street crowded with Wagons.

carries off the sewage of the city. When the Illinois and the Mississippi rivers have been deepened, this canal will be of great commercial importance.

The greatest agricultural section of our country is tributary to Chicago. Here wheat, corn, oats, hay, potatoes and other crops are grown. On these farms are needed plows, cultivators, seeders, harvesters, threshers, wagons and windmills. Lumber is needed for buildings, and fuel for homes and factories. Great quantities of food and clothing are needed also. Chicago serves as a manufacturing and distributing center for a large area. To carry these commodities many railroads are needed, and Chicago has become the greatest railroad center in the world.

On the farms that stretch north, west and south from Chicago, hogs, cattle, sheep and horses are raised.

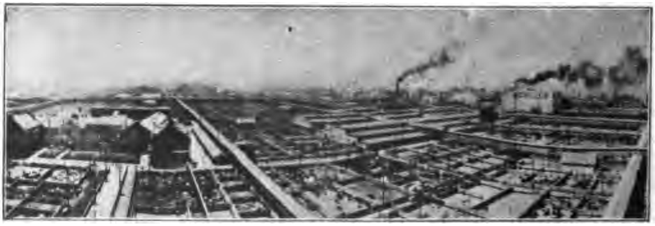


Fig. 34. — Bird's-eye View of Union Stockyards, Chicago.

Hundreds of thousands of these animals are shipped to the city yearly. As a result, Chicago ranks first as a live stock market. It has great stockyards, slaughterhouses and meat-packing establishments. In refrigerator cars the meat is sent to all parts of our country. Some of it goes to the Atlantic coast to be from there shipped to Europe.

Much wheat grown to the west of Duluth is shipped by water from that city to Chicago. Great quantities come to Chicago by train, also. Corn, oats and other grains are received. Immense buildings called elevators are located along the river. In these the grain is stored. There are flour mills where wheat is ground and breweries where much barley and corn are used.

As you have learned, lumber is produced in the Great Lakes region. Every day during the summer, shiploads bound for Chicago leave Duluth, Superior and Marquette. The lumber yards, located along the Chicago River, cover a large area. Fire boats help to guard the lumber against fire. Much lumber is used in the city, and trainloads are sent to towns and cities in the prairie section.

Some of the iron and copper produced in the Lake Superior region is shipped by water to Chicago. Illinois has immense deposits of coal. The level land makes the cost of transporting this by rail cheap. Because coal and iron can be cheaply secured, as well as because of the great demand for iron and steel goods, Chicago manufactures cars, steel rails, structural iron, farming machinery and numerous other things.

The question of securing a water supply is a very important one in all large cities. The position of Chicago gives it a great advantage. Stretching away from her front door, much farther than the eye can reach, is a body of pure cold water. Great tunnels have been dug under the lake to distances of from two to four miles from shore. At the ends of these tunnels are stations known as *cribs*. Water is pumped through the tunnels to towers in various parts of the city, and from the towers it is conducted to the homes and other buildings.

In 1837 the grandfather of the writers of this book visited Chicago. He found it an unattractive place having a population of about 4000. The land was swampy and only about ten feet above the level of the lake. It has since been raised several feet by filling in with great quantities of soil, and land has been made along the lake shore by the same process.

On March 4, 1837, Chicago was incorporated as a city. It was known as Fort Dearborn from 1804 to that date.

At the time mentioned, New York, Boston, Philadelphia, Baltimore, Washington, New Orleans and St. Louis had each a larger population than Chicago. To-day it has passed all of them but New York. The greatness of a city depends upon its natural advantages. You have learned of some of the advantages which

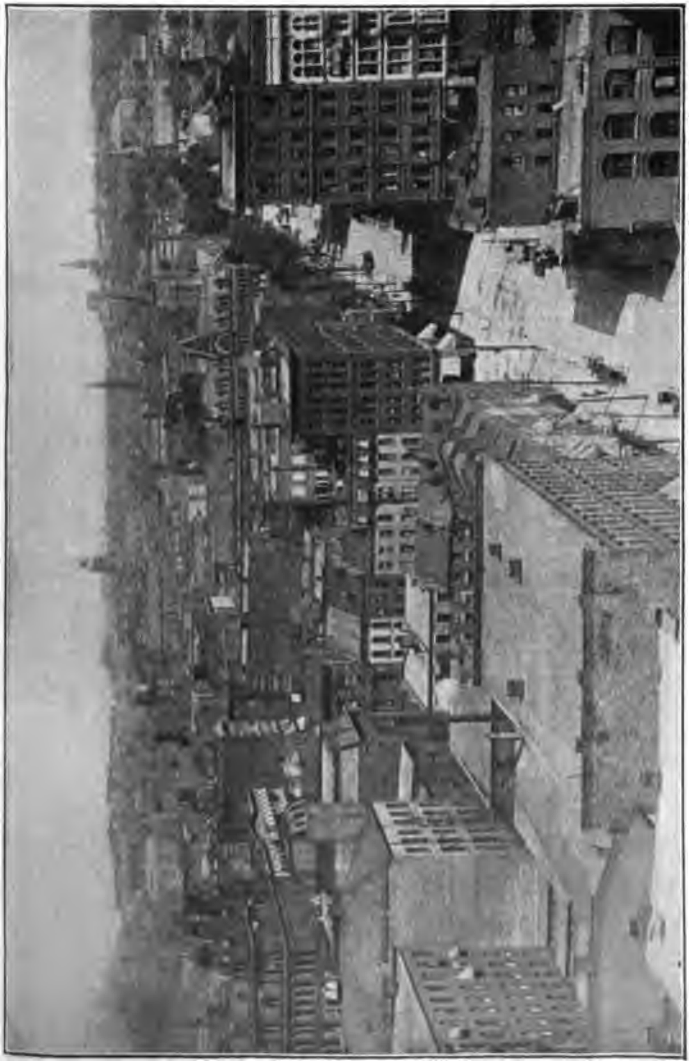


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FIG. 35.—Panorama north from Morgan Building, Buffalo, New York.

have led to the wonderful growth of this greatest city by our inland seas.

While Chicago is the greatest of the lake ports, Buffalo ranks second. You have already seen that this city owes its development, in very large measure, to its position. It is situated near the point where transportation on the Great Lakes is interrupted by the Falls of Niagara. Here, then, there is reshipment, goods being transferred from the lake vessels to the boats on the Erie Canal, or to the trains. It receives wheat, lumber and iron from the West. The power obtained from Niagara Falls is used in manufacturing, in running cars, and in lighting the city.

Erie is the lake port of Pennsylvania. Its position is not so favorable as that of Buffalo, and it therefore has less commerce. Much iron from the Lake Superior region is unloaded here, and sent by rail to Pittsburg and other cities in that vicinity. Erie ships westward large quantities of anthracite coal.

All through the summer ships can be seen unloading iron ore from the Lake Superior region on the docks at Cleveland. Trainloads of coal from the mines of Ohio and Pennsylvania are rushed into the city. Having cheap iron and coal, Cleveland has become very important in the manufacture of iron and steel goods. The great machines used in unloading the ore, as well as in loading ships with coal, are made here.

Cleveland is the greatest iron market in the world. Some of the iron is used in the manufacture of steel rails, ships, steel for buildings, automobiles, cotton presses, sewing machines and other things. A great deal of petroleum is shipped here, and from it kerosene, gasoline, benzine and naphtha are made.

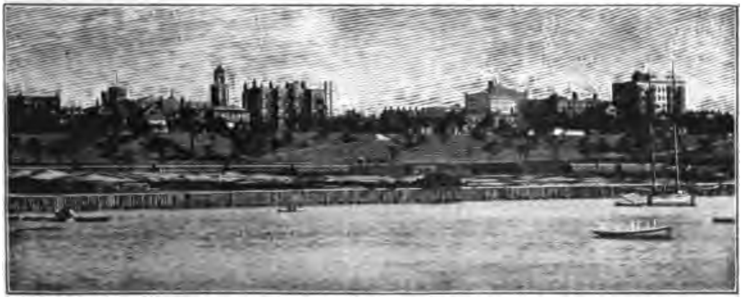

Fig. 36. — The Lake Front, Cleveland.

Toledo is situated where the Maumee River enters Lake Erie. It receives lumber from the West, ships some coal, and is a manufacturing as well as a lake port city. Long, long ago, when the glacier prevented the Great Lakes from discharging their waters by way of the St. Lawrence, there was an outlet along what we now call the Maumee Valley.

Detroit is situated on the river of the same name near the head of Lake Erie. Being on the line of traffic through the lakes, it has rapidly developed from a French fur-trading settlement to a city of great commercial importance. Here there is an opportunity for land travel between the United States and Canada, and therefore Detroit is a crossing place for railroads.

Detroit manufactures steam and street cars, automobiles and many things in the construction of which iron and steel are used. Its location and beauty are making of Detroit a great convention city.

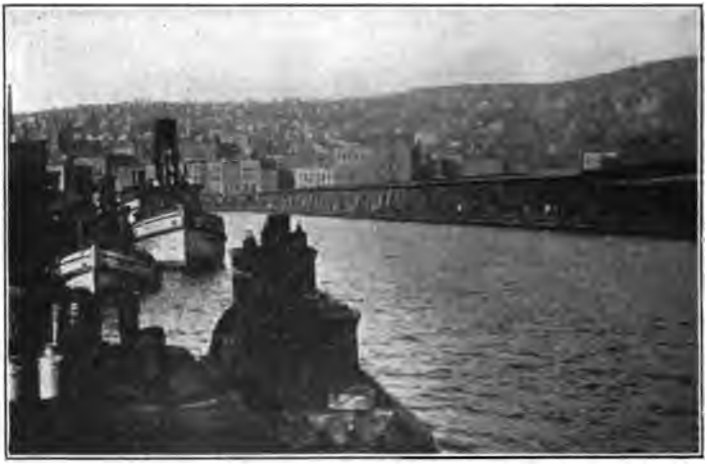

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FIG. 37. — **Panorama of Duluth, showing Docks.**

Milwaukee, the largest city in Wisconsin, is only a few hours by rail or boat from Chicago. It has a good harbor, and a river which furnishes some power. Its manufacturing and shipping interests are extensive, as Wisconsin is rich in farm, dairy, mine and forest products. Much meat is packed here, and the hides of the cattle are tanned by means of the bark which the forests of the state produce. From the clay near by, both common and pressed bricks are manufactured.

At the west end of our great inland waterway stand Duluth and Ashland. The coal, oil and other commodities landed here are distributed by rail to the region to the westward. From here wheat, iron and lumber are shipped East in great quantities.

Duluth rises from the lake shore to hills overlooking a deep and protected harbor, while Ashland is just across the bay in Wisconsin. The iron ore which is shipped from these cities, as well as from Two Harbors, Marquette and Escanaba, goes to Chicago, Detroit, Pittsburg, Toledo and Cleveland, where iron and steel goods are made.

In the northern peninsula of Michigan there are rich deposits of copper. This also is shipped eastward by the Great Lakes. Can you name some of the uses of copper?

CHAPTER X

NIAGARA FALLS

Between Lake Erie and Lake Ontario there is a ridge of hard limestone rock. North of this the rocks are softer. The Niagara River flows across these two sets of rocks, cutting away the softer more rapidly than it does the harder ones. This has gone on for ages, until now there leaps over the limestone cliff the grandest waterfalls in the world — Niagara.

For some distance before reaching the falls, the river flows rapidly as though getting ready for its terrible plunge. In the stream, just above the falls, there is a rocky, wooded island known as Goat Island. This divides the falls into two parts. One of these is called the Horseshoe Falls, and is on the Canadian side. The other is called the American Falls. The roar of the water as it strikes upon the rocks can be heard for some distance. It causes even the solid earth to tremble. A cloud of spray rises from the falls, and when the sun is shining, rainbows can be seen in it.

Long before there were any white people on our continent the Indians stopped to gaze at this wonderful sight as they passed that way. Probably the first white man who looked upon Niagara was the French missionary, Father Hennepin, in 1678. He made a sketch of the fall, and described it in a book which he wrote. Since that time it has been visited by people from all parts of the world. Less than twenty-five years ago a part of this enormous power was put to work.

As we stand upon the brink of the falls, listening to the roar of the waters, and watching the rising cloud of mist with its rainbow decorations, we do not wonder that the Indians named it Niagara, which means "thunder of waters." Far below we see a small boat tossing on the river. It is the pleasure boat, *Maid of the Mist.* A car takes us down an incline to the water's edge, and

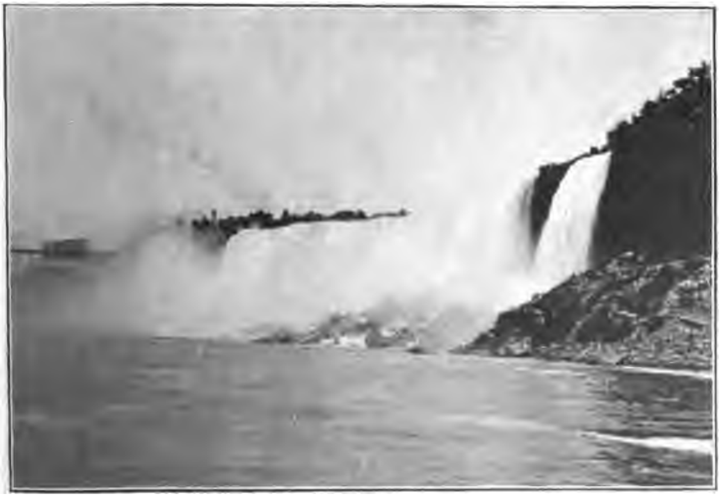


Fig. 38.—Niagara Falls from the *Maid of the Mist.*

we step aboard. We put on rubber coats, and the little steamer starts toward the great white wall of water before us. The river becomes rougher and rougher until the water fairly boils. The mist collects upon our rubber coats. The boat is tossed about until it seems as though she would surely be capsized. But now the man at the wheel swings her around, and we go downstream for a short distance, only to turn back and repeat our experience. Finally we land, and take the car to the top.

Now we are to enjoy another interesting experience. We step inside a building and are shown to a dressing room, where we remove our clothing, and put on a bathing suit. Over this we wear an oilskin coat. A guide leads the way down a spiral stairway to the foot of the falls. The roar increases, and the spray falls upon us almost like rain. Now we seem about to plunge directly into the falls. The guide takes us by the hand and leads the way upon a footbridge. So much water falls upon us that we can scarcely see, and we gasp for breath. Soon we reach a point directly behind a part of the great sheet of water, and here we are safe.

All about are great masses of rock which have fallen from the cliff over which the water leaps. As the water strikes the soft rock at the base of the falls, it wears out a sort of cave, leaving the harder limestone overhanging, until finally a portion of it drops. Thus the brink of the falls is slowly but steadily marching upstream.

This backward march of the falls leaves a narrow, steep-sided valley called the Gorge. This is about seven miles in length. At the present time the falls are receding at the rate of four or five feet in a century, so you can form some idea of the time it has taken them to wear back seven miles.

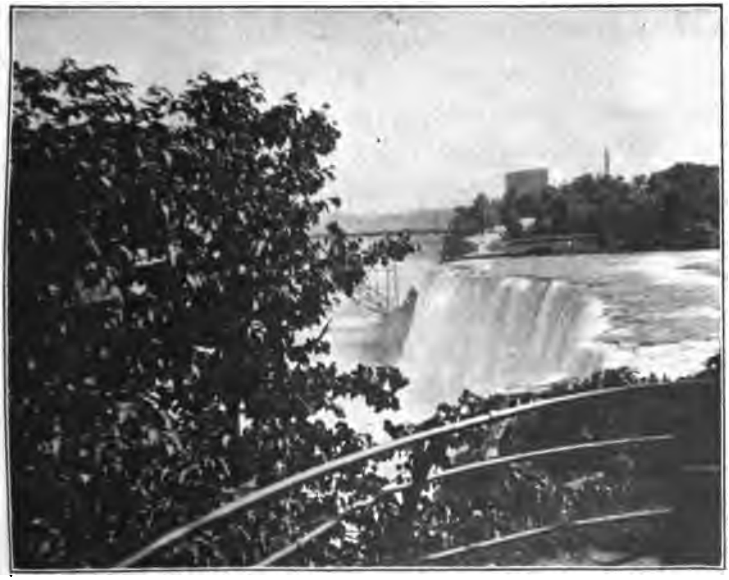


FIG. 39. — Niagara Falls from the Island.

Below the falls a great bridge spans the stream. If we cross this, we find ourselves in a foreign country — Canada. An electric railroad follows the gorge, which is about 250 feet deep, and from the cars we can see the water as it foams and tumbles in its rush from Lake Erie to Lake Ontario. Perhaps the most wonderful thing about the ride is that the very car in which we are sitting is being driven onward by the same force that cut the gorge — Niagara itself.

When water falls from a height, it strikes a blow. The greater the distance which the water falls, and the greater the volume of the water, the greater the force of the blow. A common way of measuring this force is by comparing it with the amount of work an ordinary horse can do. If all of the power of Niagara were in use, it would require the work of about 4,000,000 horses to equal it. The total number of horses in the United States is about 20,000,000.

Falling water can be made to work in two ways. The direct force of the water as it falls is often employed to turn wheels, thus grinding grain or sawing lumber; or the falling water may be made to produce an electric current. Where direct water power is used, the mills must be beside the falls. The electric current produced by the falling water may be carried for long distances by means of wires, and so the factories do not have to be close to the falls.

Your map will show you that the great city of Buffalo is about twenty-five miles from Niagara Falls. By night the homes and streets of the city are lighted by electricity, produced at Niagara Falls. It is the foam-ing wall of water leaping from the cliff about 160 feet high that causes the trolley cars to rush through the streets, and which does much of the manufacturing carried on in Buffalo. You see now that Niagara is more than a wonderful sight.

In order to produce the electric power, a certain amount of water is taken out of the river *above* the falls, and after being used is returned to the river *below* the falls. The greater the volume of water taken out above, the smaller and the less grand the falls become. On this account many people are urging our government, as well as that of Canada, to allow no more of the water to be used in this way.

Around the Great Lakes there are forests, vast deposits of iron and copper, and great stretches of land where wheat, corn and oats are grown. These and other things are shipped eastward upon the lakes. The Niagara Falls block this great water highway. Because of this, the Erie Canal was dug across the state of New York so that produce can be sent from the Great Lakes to the Hudson and the Atlantic Ocean. Only canal boats use this waterway, so goods have to be reshipped at Buffalo. This has made Buffalo a great lake port. The Canadians have dug a canal, known as the Welland Canal, by means of which they send goods from Erie to Ontario, or the reverse.

Now that you have learned something of the Niagara

Falls, you will want to see them. After you have seen them, you will want everybody to enjoy this great privilege, and you will hope that this wonderful sight may give pleasure to people for hundreds of years to come.

CHAPTER XI

THE FATHER OF WATERS

RIVERS differ very greatly. Some foam and tumble over rocky courses. They flow so swiftly and have so many falls and rapids that they cannot be navigated. Others present a smooth and untroubled appearance. They flow slowly and bear boats loaded with produce and passengers. Some rivers have times of flood, when they sweep along mud, rocks, trees and houses. The St. Lawrence is one of the rivers that does not exhibit these terrible moods. The Great Lakes regulate its flow so that it changes but little from season to season. The Colorado flows for hundreds of miles in a deep cañon which it has cut out of the solid rock. The Platte winds across a plain, constantly filling its channel with the sand which it deposits.

Flowing across our country from north to south is one of the greatest rivers in the world. The Indians named it Mississippi, meaning "Father of Waters." Let us take an imaginary journey by boat from its source to the great gulf into which it flows.

We start on our long trip from a little lake in northern Minnesota, called Lake Itasca, at an altitude of 1500

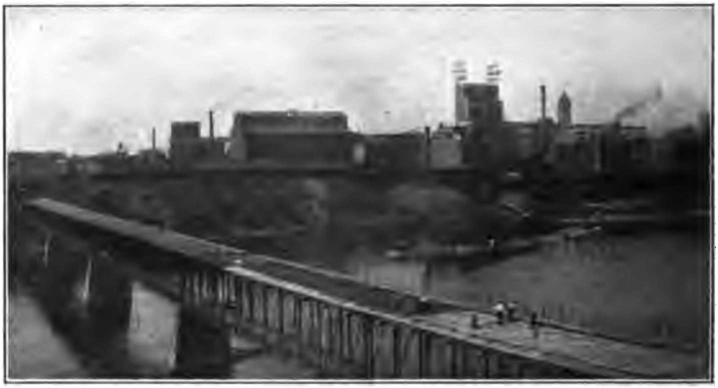


FIG. 40.—Flour Mill District,

feet above the sea. Around us are pine-covered hills. The lake is situated in a region which the state of Minnesota has set apart as a park. It is thirty-five miles in extent, and is called "Itasca State Park."

Most rivers begin as tiny brooks, but the Mississippi is thirty feet wide and five feet deep when it issues from the lake. It is used for commercial purposes within twenty-five miles of Lake Itasca. As we journey we see many logs being floated downstream. There are numerous small lakes along this part of the river's course, caused by the glacier which once covered the land. The region is sparsely settled, and in winter it is very cold.

After a time we get into a better farming country. Towns become numerous on both banks of the stream. Now we approach the largest city which we have seen. It is Minneapolis, situated upon the right bank

Saint Anthony Falls.

of the river, and about 500 miles from our starting point.

Here are the Falls of St. Anthony, and a part of the power of the stream has been appropriated by man, and made to work for him. You remember that there are vast wheat fields in Minnesota and in the Dakotas. Much wheat raised in these states is sent to Minneapolis, because it can be cheaply ground there. We leave our boat and visit some of the great flour mills in the city. One of them, the "Pillsbury A," is the largest in the world. It can manufacture 10,000 barrels of flour daily. Here are sawmills where countless logs are made into lumber. The power is used for other purposes, also. Near by are deposits of clay, and Minneapolis manufactures much brick. The country round about is beautiful with its many lakes, its streams, falls and woods.

A few miles south of Minneapolis, the Minnesota River joins the Mississippi. Here on a commanding bluff is situated Fort Snelling. On the east, about 150 feet below the fort, flows the Mississippi. Its valley is a gorge which begins here and ends at the Falls of St. Anthony. This gorge marks the retreat of the falls. Man has stopped their further retreat by protecting the rock.

A short distance farther down the river is St. Paul. On the left bank of the stream, nearly encircled by high bluffs, a Jesuit missionary built a small chapel and dedicated it to St. Paul. It is said that the city owes its name to this fact. St. Paul has now spread across to the west bank of the Mississippi. The city is an important railroad center. It receives grain and lumber from the surrounding country, and it manufactures and

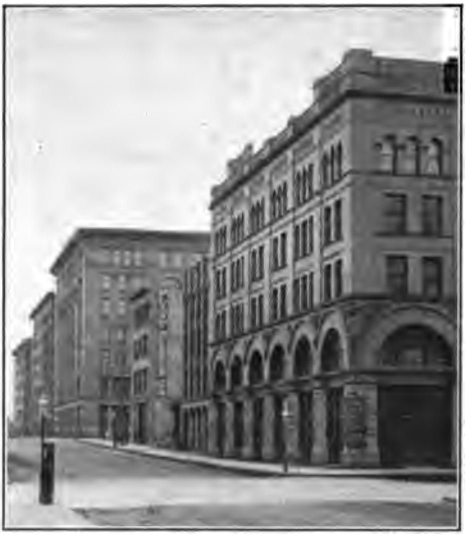

Courtesy Minneapolis Commercial Club.

FIG. 41.—In the Wholesale District, Minneapolis.

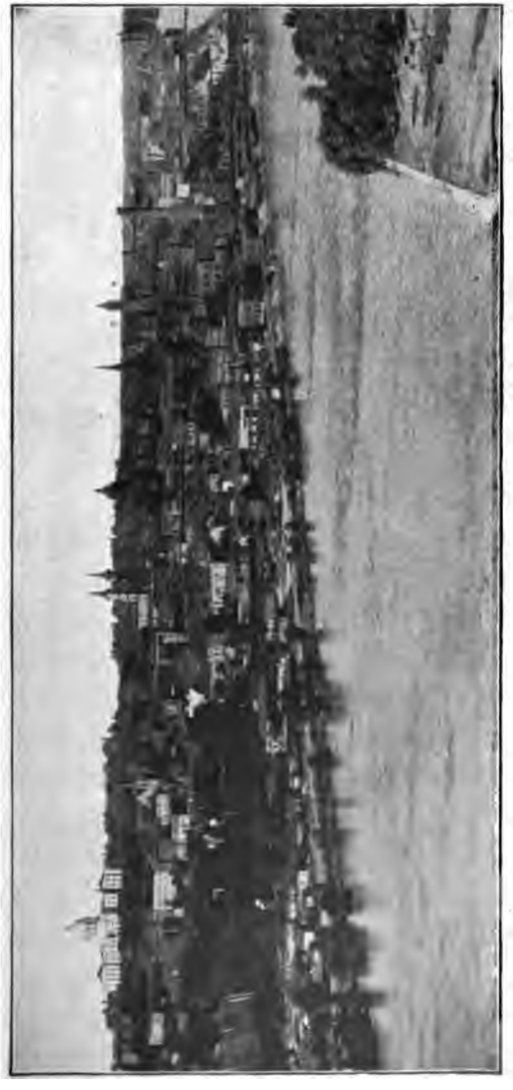


Fig. 42. — A General View of St. Paul, with the Mississippi River in the Foreground.

distributes machinery, farming implements, stoves, furniture, boots and shoes, bricks and other things. Steamboat navigation begins here. Why? Minneapolis and St. Paul are often called the "Twin Cities."

Leaving St. Paul, we continue our journey, and presently our boat enters Lake Pepin. This is an expansion of the river to some three miles in width, and nearly thirty miles in length. On the shores we see great cliffs of limestone. Some of these rise to a height of three or four hundred feet. For untold centuries the weather has acted upon the rocks, working out many curious shapes.

As we go on, the cities become numerous. Winona and La Crosse are passed, and soon we reach the northern boundary of Iowa. This fertile state sends many streams to the Father of Waters. Nearly all of the land is under cultivation. Corn is the leading crop, and Iowa ranks first in the production of this grain.

We reach Missouri; we pass the mouth of the Illinois River, and now as we look downstream, the Mississippi seems to be divided into two parts. The right-hand portion is a great muddy flood, which the clearer waters of the Mississippi seem to shun. It is the mighty Missouri, which rises far off in the Rocky Mountains. It has a steeper slope than the Mississippi, and much of its course is through a country in which there are no forests.

Twenty miles below the mouth of the Missouri we see a cloud of smoke hanging over the largest city on the Mississippi River. This is St. Louis. It was founded by a Frenchman in the days when France owned a part of what is now the United States. He chose a spot which would command the fur trade of the upper Mississippi and the Missouri. In those times trapping was an important industry, and great numbers of beaver skins and other valuable pelts were obtained.

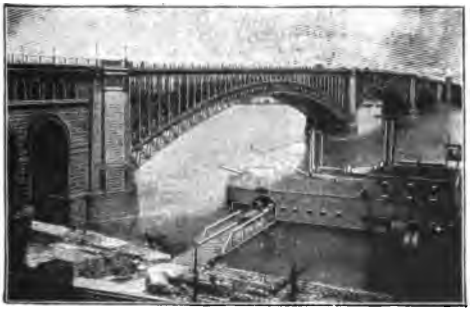


Fig. 43. — The Long Bridge across the Mississippi River at St. Louis.

Bordering the river is a limestone bluff some twenty feet high upon which a part of the city is built. This is a great advantage in time of flood, and makes the city more healthful than it would be if the land were marshy. Surrounding St. Louis is a rich agricultural country, and so the city handles grain and manufactures flour. Some of the barley and corn are used in the manufacture of liquors.

Great numbers of hogs are fattened upon the corn grown in the section tributary to St. Louis, and cattle are raised on the ranches to the westward. St. Louis is now one of the great meat-packing centers in our country.

Missouri, Kentucky and states along the lower Mississippi grow large quantities of tobacco. Much of this is shipped to St. Louis to be manufactured there. Louisville is St. Louis' great rival in this industry.

No doubt you have often ridden in street and railway cars which were made in St. Louis. This city manufactures machinery, clothing, boots and shoes, chemicals and drugs, and refines quantities of sugar. It has great advantages for manufacturing, because coal and raw products come down the Ohio River as well as down the Illinois.

St. Louis has become a great railroad center. Roads from all parts of the country cross the river here, which at this point is nearly half a mile wide. There is much commerce by water as well as by rail. As the river is deeper south of the city than it is north of it, St. Louis has become a point of reshipment.

Another relation which the city bears to the river is that it draws its water supply from it. The water is run into great reservoirs and filtered before being used. The abundant supply of water is an advantage in the meat industry, also. Like Chicago, St. Louis has many natural advantages which have led to its development.

The smoke hanging over the city of St. Louis has disappeared from view. Another great river enters the Mississippi, this time from the east. It is the Ohio, formed by the junction of the Allegheny and the Monongahela, where stands the city of Pittsburg. It brings tribute from many states.

The first steamboat to navigate the Ohio River left Pittsburg in 1811. It was called the *New Orleans*. At that time there were no railroads, telegraph or telephones in our country. The land along the river was wild, and few people had heard of the steamboat. Therefore when the settlers caught their first glimpse of it, some of them were badly frightened. To-day many steamboats navigate the Ohio. We see barges of coal being towed down as we pass the mouth.

Our boat is nearing the southern boundary of Tennessee. High on a bluff on the eastern bank of the river is the city of Memphis. We see ships being loaded with cotton, for Memphis is an important cotton center. It also exports hard woods, and manufactures furniture. The city is reached from the river by streets that zigzag back and forth because the slope is so steep. The view from the bluff takes in a wide sweep of country. During the Civil War, Memphis occupied a commanding position.

We realize as our boat carries us onward that we are in the Southland. We see cotton plantations, tobacco farms and fields of cane and rice. Some of the trees that we see do not grow around the source of the "Father of Waters." The river has the appearance of a great serpent, because of its many windings. There is much low land bordering the stream, and what will seem very strange to you is that the bed of the river is higher than the land close to it. This is because the Mississippi has for ages been dropping its load of sediment, the slope being so gentle that it cannot carry all of it.

In order to protect this low land on either side of the river as much as possible, embankments called *levees* have been constructed. These are carefully guarded, and yet terrible floods occasionally occur. At such times the river is many miles in width, and houses and barns are carried away.

The Arkansas, the Red, and many smaller streams come in from the west, as well as from the east, and now we are nearing another city located high upon a bluff. It is Vicksburg, Mississippi. Here the river makes a great bend, and swings close to a ridge known as the *Walnut Hills*. Vicksburg was settled in 1836 by a family named Vick, so you see how its name originated. Like Memphis, Vicksburg is a cotton-exporting center. It also saws much lumber, because there are forests in the state. Logs are floated down the Yazoo River. This city figured prominently in the Civil War, and here is located one of our national cemeteries.

We are now in the delta of the Mississippi, a great tract of land twice as large as France, built up by the river. Rice fields are numerous, and there are great stretches of swampy land covered with tall grasses where alligators are found. Here and there are the huts of Italian fishermen.

The river now ceases to be a boundary line, and flows directly across the southern part of the state of Louisiana. We pass the capital and at length tie our boat to a wharf at the "Crescent City." New Orleans is one hundred and ten miles from the Gulf of Mexico. At her wharves we see ships of all nations. They are unloading goods from foreign lands and loading with cotton, grain, sugar, molasses and rice. The land is very flat, and during times of flood the water flows back into the streets of the city.

Just where the city is situated, the Mississippi makes another of its great bends, forming a crescent which has given New Orleans the name of "Crescent City." This curve brings the river close to an arm of the gulf called Lake Pontchartrain. In the days before steamboats came into use, this lake was used for sailing vessels. This rendered it very easy to reach the city, for sailing vessels made slow progress upstream on the Mississippi.

There is no bridge at New Orleans, as the river is too wide, but there is a ferry which transfers trains as well

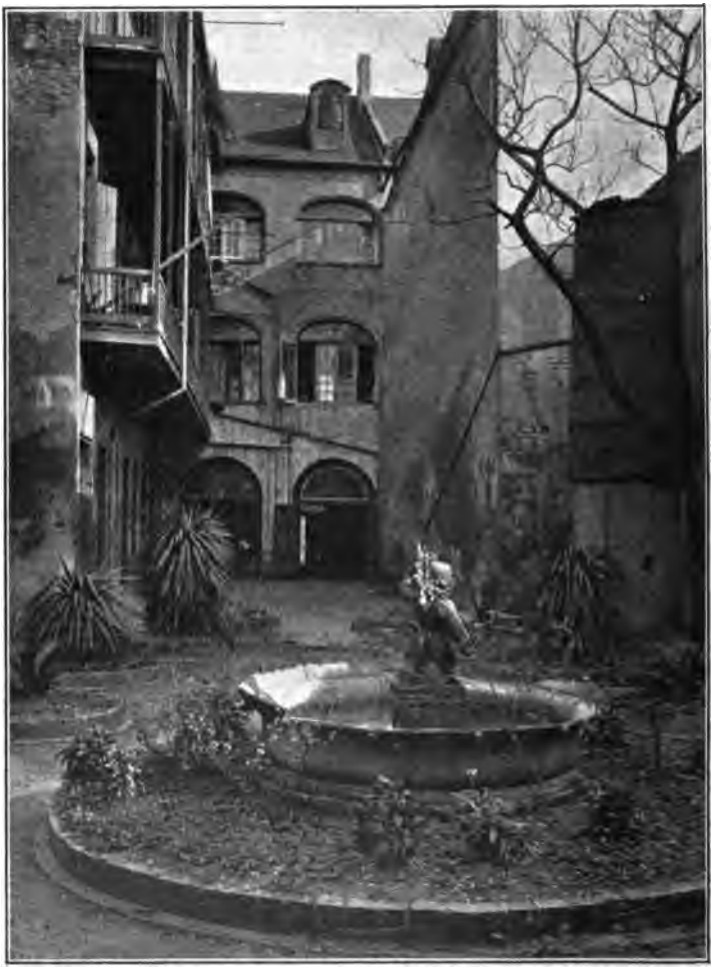


Fig. 44. — French Courtyard, New Orleans.

as people. The streets are for the most part narrow. In the older part of the city many of them have French names, and the houses show the French style of architecture. Often we see a door knocker instead of a bell. The windows of the upper stories are surrounded by iron balconies. Sometimes these extend along the entire front of the house, and if more than one family occupies the house, there are wooden partitions in the balcony. Generally there is a court in the rear of the house. This is reached by an alley. There is always a cistern which holds rain water used for domestic purposes. As we go about, we hear the French language spoken. All of these things are reminders that New Orleans was once a French possession.

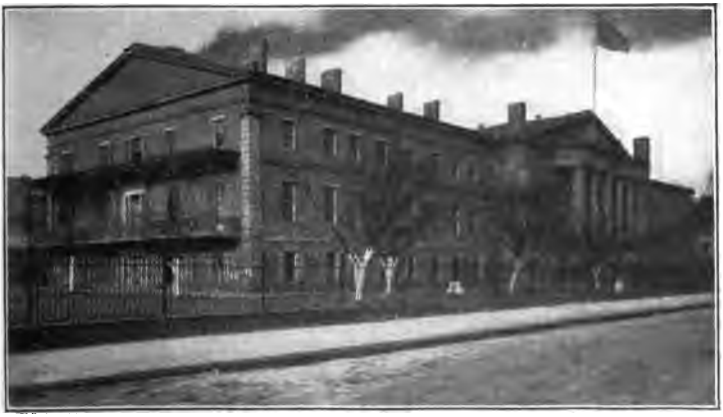


Fig. 45.—U. S. Mint, New Orleans, Louisiana.

On the wharves are thousands of bales of cotton.

Negro laborers are loading them on to large ships, some of which are bound for European countries. Sacks of sugar, barrels of molasses and large quantities of tobacco are also seen. Here are unloaded cargoes of bananas from Nicaragua and Costa Rica, pineapples from Cuba and nuts from Brazil.

A visit to the French market is exceedingly interesting. Many kinds of products are sold here. There are meats, fish, oysters, poultry, fruits and vegetables. But a few feet away we see millinery, lace and ribbons displayed. This market is a very busy place each morning.

The milk carts are high and carry two large brass-topped cans in front. There is a sort of canopy over the cart so that it can be covered in case of rain. There goes the bakery wagon. The man jumps out and, taking a loaf of bread, leaves it on the little projection above the door. At house after house the bread is delivered in the same manner.

We might say that New Orleans stands at the south door of our country, for the Mississippi, as you have seen, leads into the heart of the United States. South of New Orleans the river follows a narrow strip of land which it has built up through its own action. You see at once that there is no place for a great city at the river's mouth or, rather, mouths. One of the three chief channels has been improved by the government, so as to furnish deep water. For a distance of two miles out into the Gulf of Mexico it is lined with mattresses of willows and stone. But for this channel, New Orleans could not be the important city that it is.

Our long but interesting journey of 2250 miles is ended. During the trip we have dropped 1500 feet, but so very slowly that it was scarcely noticeable. We have passed from the highlands of Minnesota, with their bitterly cold winters, to a land of perpetual summer. We have seen the natural vegetation, the crops, and the occupations of the people slowly change as we continued our southward journey. Could we have turned up each tributary of the Mississippi, and have followed it to its source, we should have seen a large part of the United States.

Fig. 46. — Lee Monument, New Orleans.

As it is, we have seen portions of ten states, and our boat has been carried onward by water contributed by twenty others, and by a very small part of Canada as well.

There is no other region in the world so productive as that drained by the Mississippi. Its grain, lumber and mineral wealth, its live stock, cotton, rice, sugar, tobacco and fruits are worth fabulous sums. We have seen the river furnishing power to operate factories, run cars and light cities. We have seen it bearing lumber, grain, coal, cotton, sugar and other things. Here it has cut out a deep channel in the rocks, and there it swings in great loops over the marshy lowlands. We have seen it serving as a boundary for states, and supplying cities with drinking water. Surely we know more of our great country for having taken this boat ride upon the "Father of Waters."

CHAPTER XII

THE WESTERN PLAINS

WEST of the Mississippi River there stretches a vast plain. It rises so gradually toward the Rocky Mountains that as we travel across it we scarcely realize that we are ascending. Most of the rivers that drain it are shallow. Some flow in cañon-like valleys, and others, like the Platte, wander back and forth during times of flood.

As this region is so far removed from large bodies of water, there are great differences between summer and winter temperatures. In winter severe snowstorms known as *blizzards* sweep over it. These sometimes block trains temporarily, and destroy communication by telegraph. At such times the snow is so blinding that a traveler caught in the storm can see but a few feet before him. The summers are long and warm, and well adapted to the growing of grains.

Except upon the uplifts known as the Ozark Mountains and the Black Hills, and along the river bottoms, there is no natural growth of timber, although many trees have been planted. Less than one hundred years ago millions of buffalo roamed over these plains, feeding upon the grass that covered the land wherever the rainfall was sufficient. The red men, armed with bows and arrows, and mounted upon their swift ponies, hunted them. The flesh they used for food, and from the skins they constructed their conical tents called *wigwams.* When the white hunters came with their rifles, the buffalo disappeared rapidly. Thousands were killed for *sport.* To-day none remain except the few that are kept in confinement, and upon government reservations.

In time people needed the prairies west of the Mississippi, and the land was rapidly settled. The soil is deep and fertile, for the glacier spread a mantle of ground-up rock over the region instead of covering it with bowlders as it did in New England. The level country favors the use of farming machinery. There were no forests to be cleared away, and no swamps to be drained. In much of the region there is sufficient rainfall, and, as has been said, the long, warm summers favor agriculture. These conditions have combined to make this a very productive region.

You have already learned of the wheat ranches of Minnesota and the Dakotas. Wheat is an important crop in most of our states, but in the central part of our Western plains "corn is king." Corn is the most valuable crop raised in the United States. Enormous quantities are grown in Iowa, Missouri, Nebraska and

Kansas, as well as in Illinois, Indiana and Ohio. These states constitute what is known as the *corn belt.*

Although so much corn is grown in the United States, only a very small part of it is exported. Its great bulk and its low price make it more profitable as a feed for stock, especially hogs. The corn states raise large numbers of hogs, and Chicago, St. Louis, Kansas City and Omaha are the most important pork-packing centers. Many cattle raised on ranches west of the corn belt are taken into the corn country and fed for a time on this grain. As we export much meat, a part of our corn crop is marketed in European countries in this way.

Corn is also used in the manufacture of starch, corn-sirup, or glucose, meal, hominy, alcohol and whisky. The stalks of the corn are used as a fodder and a fertilizer. Paper is sometimes made from corn leaves, and the husks are used in mattresses. Pipes made of corn-cobs are in use in all parts of the country.

When the white men came to America, they found the Indians raising this grain which they called *maize.* The corn of to-day is a great improvement over that grown by the Indians, and the improvement is still going on. School children have helped some in this work by picking out the most perfect ears to furnish seed for planting.

You remember that the early settlers on the Atlantic

Coastal Plain built their houses of logs. The people who settled on these Western plains found little timber, and so their houses were generally made of sod. When railroads were built through the region, lumber was shipped in from the forests around the Great Lakes, and the sod houses went out of use.

Fuel was another thing difficult to obtain before the days of railroads. Now coal is distributed to all parts of the section. Some comes from east of the Mississippi, and some is mined in Iowa, Missouri, Nebraska and Kansas.

The railroads bring in many kinds of manufactured goods, such as machinery, vehicles, furniture, clothing, boots and shoes, canned goods, windmills and wire for fences. They carry away the products of the soil, live stock and meats. You see how much the development of a country depends upon railroads. It is equally true that the railroads depend upon the prosperity of the country.

In the southern part of Missouri there is an uplift known as the Ozark Mountains. As the rainfall is a little greater than it is on the lower land, there is some timber here. These mountains are also valuable for their deposits of lead and zinc.

Another uplift, the Black Hills, is found in southwestern South Dakota. Much gold is mined in these mountains, while lumbering and cattle raising are carried on. As the Black Hills rise 2000 to 3000 feet above the plain, they condense considerable moisture. Some of this finds its way into a layer of sandstone which slopes downward toward the east, and is covered by clay and shales. This covering prevents the water from coming to the surface. When wells are sunk on the dry plain many miles to the east, the water rises to the surface.

West of the one hundredth meridian the rainfall is less than it is east of it, and therefore this section of the plains is not well adapted to some kinds of crops. Great quantities of durum wheat are now raised in this semi-arid region. This variety of wheat was introduced by our government from that part of Russia lying near the Sea of Azov. This wheat does not require much water, and resists smut and rust. As macaroni is made from durum wheat, its successful cultivation on these Western plains means a great deal to our country.

Cattle raising is an important industry in Texas, Kansas, Nebraska, Iowa, Colorado and Montana. The industry has steadily moved westward, as the land has been more and more devoted to agriculture. Years ago the cattle roamed freely over the *range*, but now the cattle ranches are fenced. The men who look after the cattle are called "cowboys," but they are not boys at all, but strong men. They are out on their ponies in all kinds of weather; they wear broad-brimmed hats, and carry long ropes called *lassos* or *lariats*, with which they catch the cattle.

Bringing the cattle together for the purpose of branding them, or selecting some for the market, is called "rounding up" the cattle. The cowboys, mounted upon their swift, strong ponies, single out the young animals that have never been branded, and, swinging their lassos over their heads, they throw them with such skill that the loop settles over the head or about the leg of the one wanted. As soon as the rope tightens, the pony braces its forefeet firmly, and the animal is finally thrown to the ground. It is then branded with a hot iron and allowed to go.

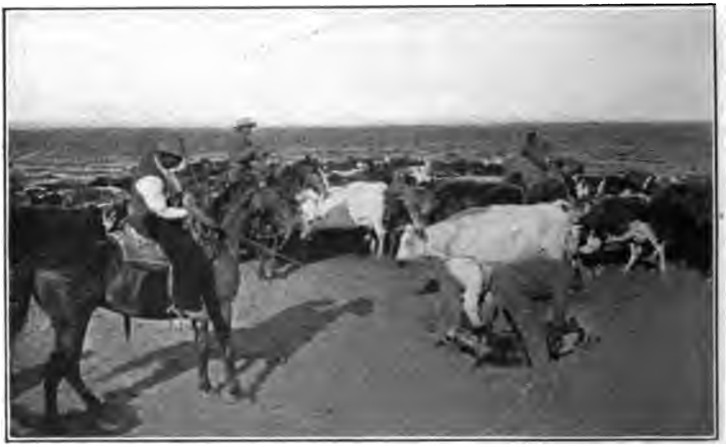
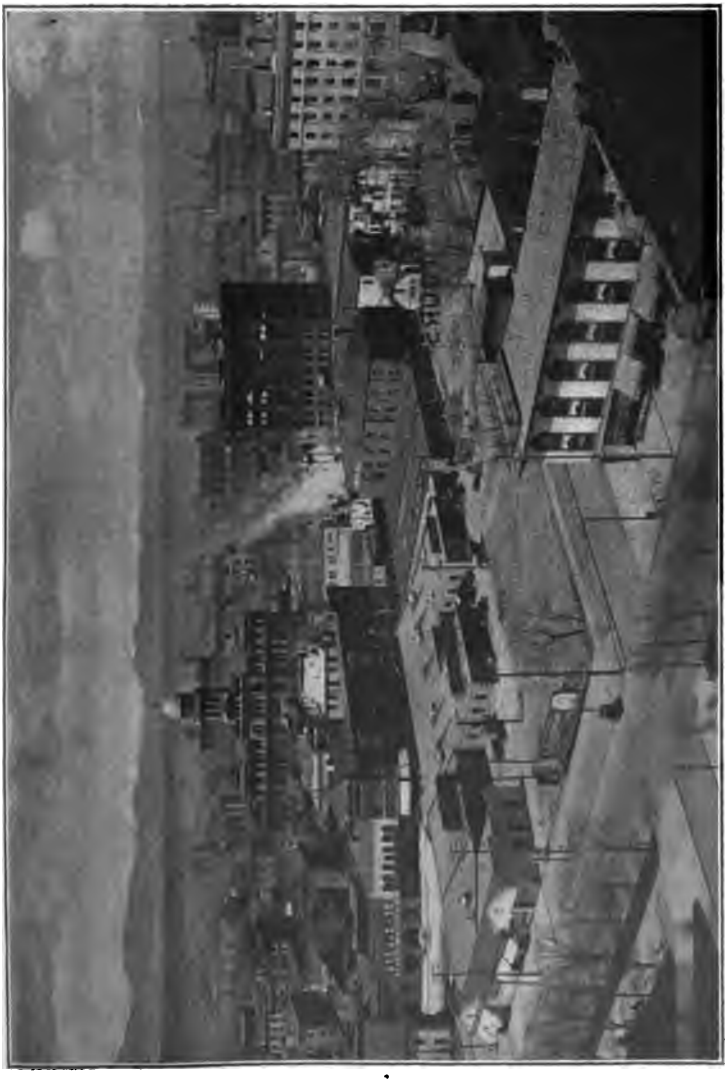


FIG. 47. — Branding Calves.



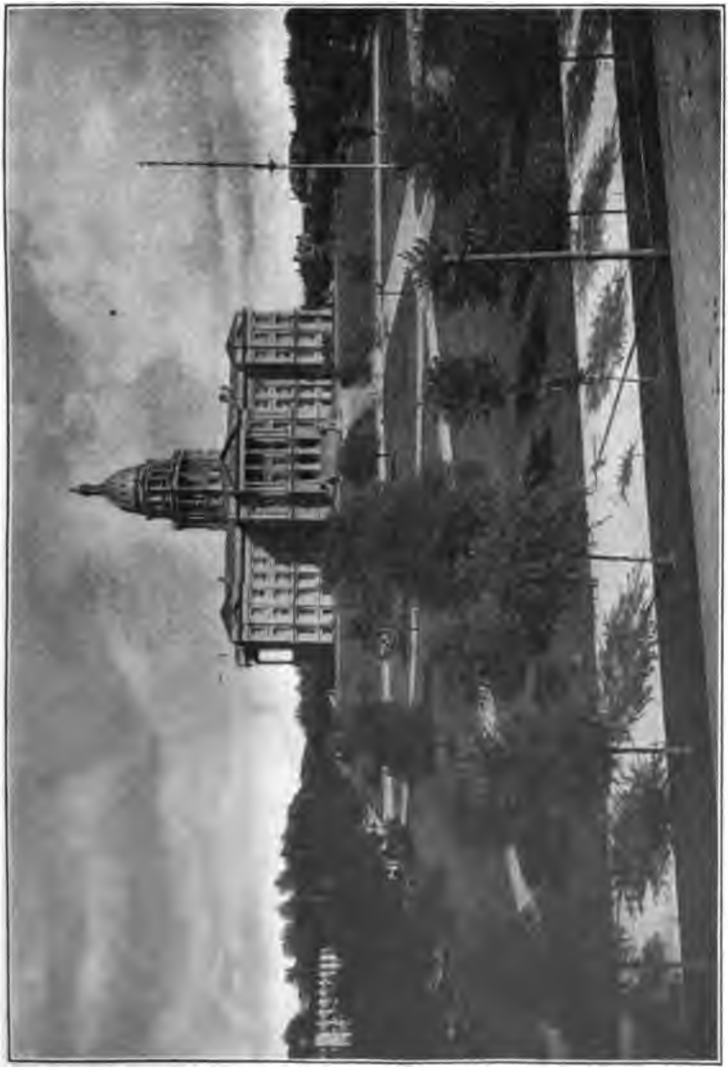
Courtesy Denver Chamber of Commerce.

FIG. 48. — Denver, Colorado.

As already stated, the great cattle markets of our country are Omaha, Kansas City, St. Louis and Chicago. Of course, some cattle are shipped to cities farther east and even to Europe. The beef is shipped in vessels to Europe, and by train to all sections of the United States. All parts of the cattle are used. The hides are tanned, and from them boots and shoes are made. The hoofs and horns are used in the manufacture of glue. The hair is mixed with plaster, and burned bones, called *bone black*, are employed in refining sugar.

Almost on the border between the plains and the Rocky Mountains is the city of Denver. When we stand in the streets of this city, we are higher than most of the peaks in the Appalachian Mountains. Looking eastward there is spread out before us the vast plain over which we have just traveled. A few miles to the west are foothills which gradually merge into the Front Range of the Rockies. Some of the lofty peaks visible from Denver appear quite close, yet they are really from seventy-five to one hundred miles distant. This deceptive appearance is caused by the clearness of the atmosphere.

Denver is situated on a branch of the South Platte River. This and other streams bring from the mountains water which is used in irrigating the crops and in supplying the cities. North of Denver is a rich farming country from which much food is supplied to the city.



Courtesy Denver Chamber of Commerce.

FIG. 49. — **State Capitol, Denver, Colorado.**

Colorado is the greatest gold and silver producing state in our country. Lead, copper and coal are mined, also. Denver distributes to the mining country machinery, tools, powder, dynamite, food and clothing. From the mines the ore is shipped to Denver to be smelted, for there is coal not far from this city. Denver is therefore important as a manufacturing, a distributing and a railroad center.

Courtesy Denver Chamber of Commerce.

FIG. 50. — Gateway to Garden of Gods, Pike's Peak in the distance.

You have already learned of the wonderful clearness of the atmosphere. It is pure and quite dry, and there are a large number of sunny days during the year. These conditions attract many people to the city.

Within easy reach of Denver are wonderful peaks and parks and pine-clad cañons in which streams of bright, cold water flow. In the summer many people resort to these places, where they live in tents or cottages. Because of its many attractions, Colorado, like Switzerland, is a great playground for the people of our large cities.

Courtesy Denver Chamber of Commerce.

Fig. 51. — Collegiate Range, Colorado.

CHAPTER XIII

THE CAÑON OF THE COLORADO

THERE are many great rivers in North America, and no two of them are just alike. The Mississippi rises among the hills of northern Minnesota, and after a course of about 2000 miles, it flows into the Gulf of Mexico. The land which stretches away from both banks of the river is a fertile farming country. In the north it produces wheat, in the central part corn, and in the southern, sugar, rice and cotton. Some of our large cities are situated on the river; there are great bridges where railroads cross, and many boats go up and down the "Father of Waters."

The St. Lawrence is connected with our Great Lakes, and in its lower course is really an arm of the sea. It does not have floods as does the Mississippi, and it is not building a delta. Upon its banks are some important cities, however, and great ships bear upon its waters their loads of freight and human beings.

The Colorado is a mountain stream. In its journey to the sea it falls thousands of feet. For this reason it has been possible for the Colorado to cut deeply into the solid rocks of the earth. No other river has cut such a cañon, and people from all parts of the world go to see what this stream has done and is yet doing.

The Green River of Wyoming and the Grand River of Colorado unite in southeastern Utah to form this wonderful river of the West. The upper part of the basin contains some level land, which, through irrigation, has been made to yield abundant crops. In its middle course the river has cut its valley from 2000 to 6000 feet into the solid rock. There are no large cities on the Colorado; for several hundred miles no railroads cross it, and except near its mouth it is not navigable. You see how different it is from the Mississippi and the St. Lawrence.

The larger part of the basin of the Colorado is quite dry, and some of it is a true desert. The river receives its water from the snow and rain which fall upon the mountains, and it is in flood in the summer when the snow is melting. It is the great fall of the stream, from the higher to the lower levels, and the sediment which it carries, that give it its power to cut the rock. At all times of the year the water contains a great deal of sediment. This it deposits near its mouth, building up the delta.

That part of the valley known as the *Grand Cañon* is in Arizona. The Santa Fe Railroad crosses the country about seventy-five miles south of it. The cañon may be reached by rail from the town of Williams, or one may travel by stage from Flagstaff. The stage trip is most interesting. North of Flagstaff is San Francisco Mountain, a picturesque, volcanic peak. It rises to a height of 13,000 feet. The upper part is snow-covered, and below this stretches a forest zone, shading down into the yellow desert surrounding the mountain.

The higher parts of the plateau are covered with an open forest. Not a single village is passed during the trip, which lasts all day. At intervals of two or three hours the horses, six in number, are exchanged for fresh ones. These change stations are established at places where it is possible to obtain water.

Just before sunset we reach the end of our journey. We see before us a log hotel on the rim of the cañon. We can hardly wait to get out of the stage, so anxious are we to view this wonderful scene. A walk of a few rods brings us to the brink, or rim. Speechless and filled with awe, we gaze into the awful depths. Directly at our feet is a gash in the solid rock one mile deep. Down in the bottom what appears like a ribbon is seen. It is the Colorado River leaping and plunging from rock to rock in its rush to the Gulf of California. We catch no sound of the torrent, however.

It is more than ten miles from where we stand to the opposite rim, and in some places the distance is much greater than this. The walls of the cañon are in some places nearly vertical, while in others they slope more gradually. The rocks are wonderfully colored, shades of red, brown and yellow being seen on every hand.

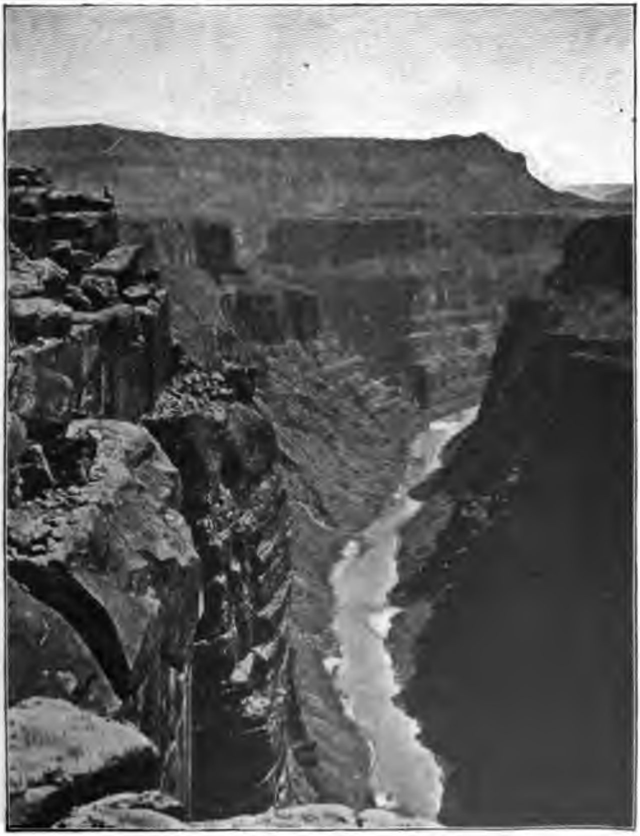


FIG. 52.—The Cañon of the Colorado, a Gash of over a Mile in Depth cut by the River in the Solid Rock.

Weathering and erosion are responsible for many curiously shaped rock masses.

A narrow trail leads down into the cañon. This was cut and blasted out of the rock. It winds back and forth that it may not be too steep for use. As we go down the trail it becomes warmer and drier, and only those plants are found which require little moisture. At last the rim of the inner cañon is reached. This is about 1500 feet above the water. From here to the river the trail is too steep for saddle animals, and the journey must be continued on foot.

At last we stand by the water's edge. No grassy banks line the river; no forest trees shade its surface; only great bowlders which the stream is not able to roll along, and the lofty walls which seem to rise to the deep blue sky. It is no sparkling stream that meets our eyes, but one whose waters are reddish brown because of the sediment carried. In fact, the name *Colorado* in the Spanish language signifies red.

In this cañon there is a wonderful cavern resembling the Mammoth Cave in Kentucky. Water trickles through the roof of the cave carrying mineral matter in solution. As the water evaporates, part of the mineral matter is left suspended from the roof much as icicles hang from the eaves of a house in winter. A little of the water drops to the floor, and as this evaporates, the mineral matter builds a form resembling an inverted icicle. The forms hanging from the roof are called *stalactites*, and those that are built up from the floor are called *stalagmites*.

As the light of our torch falls upon these formations, they glitter and sparkle, while deep shadows lurk in distant corners of the rooms and advance or retreat as we move about. There are many rooms, some with high and some with low ceilings, and in all of them there are rocks of curious shapes caused by the action of the water. In one place the roof and floor come very close together, and by means of a rope we pull ourselves up an incline leading to the opening between them.

So wide and so deep is the cañon of the Colorado that for a long distance no bridge spans it.

Neither do roads follow this valley, as is usually the case. No large cities are built upon the banks of the river, and, except in the extreme lower course, boats are not seen upon it. The Colorado has not helped to develop the country as have the Mississippi, the Hudson, the St. Lawrence and other rivers. The reason is that the basin of the river is not a fertile region. Being navigable for such a short distance, the river would not develop the country, even though its basin were fertile.

The great load of ground-up rock which the Colorado carries at all times is deposited near its mouth, much of it being carried into the Gulf of California. A few years ago this region was a wilderness, while to-day it is dotted with farmhouses and towns. This is because canals have been dug which carry water from the river to the thirsty land. It is so warm here that crops ripen very early in the season, and peaches, apricots and melons are shipped to California and to the East.

This great delta commenced to grow at a time when the mouth of the river was much farther to the north than it now is. After a time it divided, forming a lake about one hundred miles in length. Little by little the water of this lake evaporated, and the lake became steadily more briny. When the water had all disappeared, large deposits of salt were left. For years the salt from a part of this ancient lake basin, known as the Salton Sink, was collected. This part of the basin is nearly three hundred feet below the level of the sea. The whole area is to-day called the Colorado Desert.

During a flood in 1905, the Colorado left its channel and flowed into the Salton Sink, converting it into a lake about fifty miles long and ten miles wide. In its deepest part this lake is seventy-five feet deep. As the climate is so hot and dry, the water will finally evaporate, and the lake disappear.

The salt works were destroyed by the flood, the Southern Pacific Railroad was damaged greatly, and other property was lost. Some of the towns were in grave danger, and only the determined efforts of a large force of workers saved them. Finally the river was forced back into its channel, where it now flows.

It was the search for the fabled cities of Cibola, which by the Spanish explorers were supposed to be in the southwestern part of the United States, that led to the discovery of the Colorado. They found the cañon and could neither cross it nor descend to the river. Another party of Spaniards, searching for these same cities, found the mouth of the river. They ascended the stream for a short distance, and called it "The River of Our Lady of Safe Conduct."

In 1869 a government expedition commanded by Major Powell went down the river in small boats. It was a most perilous undertaking, and only two parties have since made this trip. One of the journeys was made in the autumn of 1909. The river is full of rapids and whirlpools where boats are in danger of being capsized or crushed upon the hidden rocks.

For ages the Colorado will continue to flow between its towering walls, and while it cannot be of service to man in the ways in which some rivers are, its wonderful cañon will always attract people from all parts of the world.

CHAPTER XIV

UTAH AND HER GREAT SALT LAKE

On the twenty-fourth day of July, 1847, a company of travelers emerged from a cañon on the western slope of the Wasatch Mountains. Looking westward they saw a great sheet of water spread out before them. Between the mountains and this lake was a valley across which small streams flowed.

The weary travelers hailed this sight with joy, for they had been journeying for weeks. They had crossed the great plains, and toiled over the Rocky Mountains, riding in their canvas-covered wagons drawn by oxen, or walking beside the patient beasts. These people were seeking a home, and they decided that as no white men occupied this land, they would settle upon it.

The travelers were *Mormons*, and the lake beside which they decided to settle was Great Salt Lake. Although it was so late in the year, they at once planted some potatoes and other vegetables in order to have food during the winter. You must know that in those days there were no railroads in the western part of our country, and so these people had to depend upon themselves for everything that they needed.

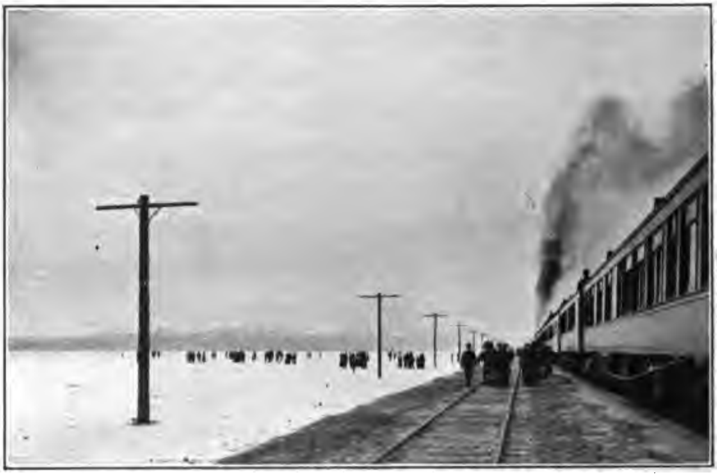
To-day Great Salt Lake is much the same as it was in 1847, but the little settlement which was then established has grown into beautiful Salt Lake City. Other cities and towns dot the valley, and there are fertile farms and fine orchards.

Great Salt Lake lies on the plateau which stretches between the Rocky Mountains and the Sierra Nevadas. It is about 5000 feet above the level of the sea. To the east, as you have seen, are the Wasatch Mountains. These high mountains chill the westerly winds, which deposit some moisture on their western slopes.

Most of the plateau is a desert because surrounded by mountains. That great portion in which Salt Lake is situated is so dry that it does not send a single stream to the sea. Such drainage is called *continental.* The Sevier River in southern Utah and the Humboldt in Nevada are the longest streams. The Bear River, which flows into the lake from the north, furnishes a great deal of water for irrigation. In the year 1825, a noted trapper by the name of James Bridger followed this river until he reached the lake. When he found that the water was salt, he concluded that it was an arm of the sea.

Great Salt Lake is about seventy miles long and nearly fifty miles in width, while its average depth is fifteen feet. If you were to evaporate one hundred pounds of the water of this lake, you would have left nearly twenty-five pounds of salt. The water is very bitter to the taste, and is so dense that bathers cannot sink in it.

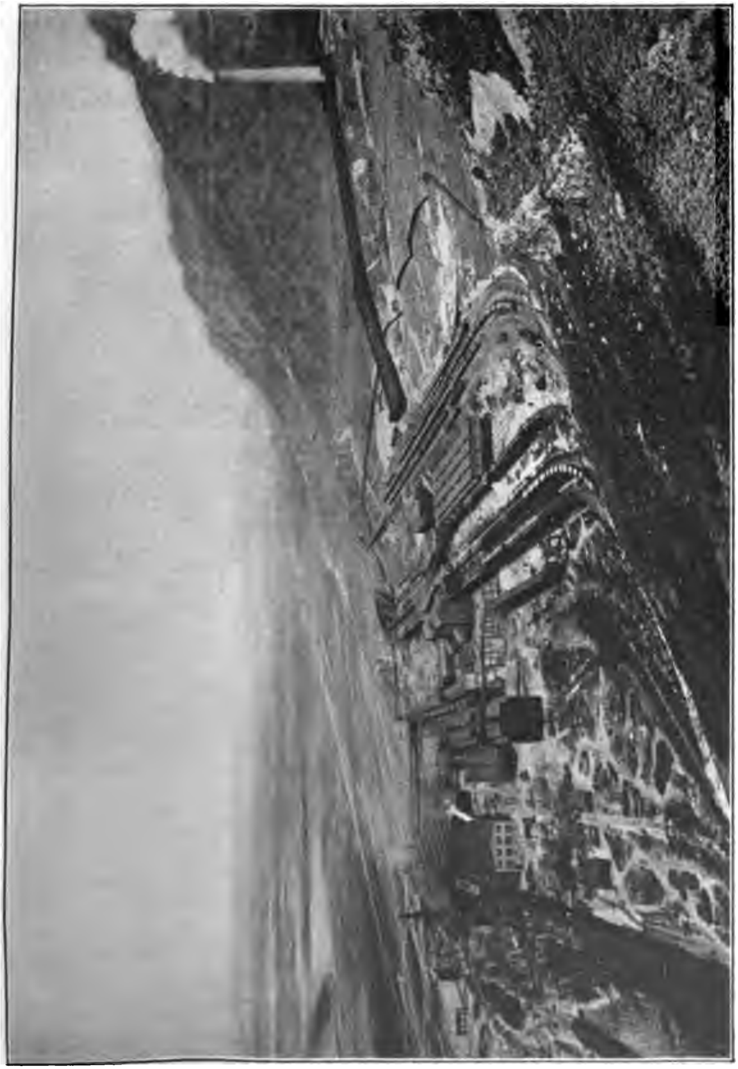
Each stream that flows into the lake carries a small quantity of salt in solution, as indeed do all streams. The water evaporates from the lake rapidly because the air is so dry, but all of the salt is left behind because the lake has no outlet. Great quantities of salt are obtained by evaporating the water of the lake. Utah produces yearly more than 300,000 barrels of salt.



Courtesy Commercial Club, Salt Lake City.

FIG. 53. — A Sea of Solid Salt in Western Utah.

Long, long ago there was a much larger body of water on this plateau. It was eight or ten times as large as the present lake, and was about 1000 feet deep. Its waters were fresh, and in them were fish of different



Courtesy Commercial Club, Salt Lake City.

FIG. 54. — Garfield Smelter, Garfield, Utah, Fifteen Miles west of Salt Lake City.

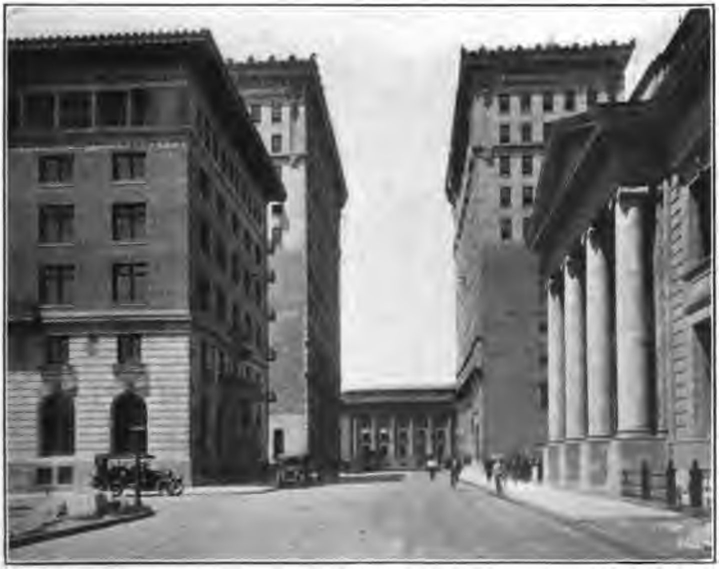
kinds. At the present time there are no fish in the lake. The great lake of earlier times had an outlet to the Snake River. In time the climate became more arid. Water evaporated from the lake faster than it flowed in, and the level fell. When the outlet was cut off, the water slowly became salty.

The visitor to Salt Lake can plainly see the ancient shore lines high up on the mountain sides. If you go northward from Salt Lake City to Idaho by the Oregon Short Line, you will pass through the very cañon, called Red Rock Cañon, which was the outlet of the lake so long ago.

The state of Utah is larger than Illinois. While most of it has little rainfall, much land has been irrigated and produces abundant crops of many kinds. Great irrigation ditches take water out of Bear River, and on the land thus irrigated sugar beets are raised extensively. Utah has much mineral wealth in addition to salt. Her mountains yield gold, silver, copper, iron and coal.

The Union Pacific Railroad was completed in 1869. Utah then was for the first time connected by rail with the outside world. This road was formerly built around the lake, but it now crosses its north end on a long trestle. The Denver and Rio Grande Road enters from the south, as does the Salt Lake Railroad, which connects Salt Lake City and Los Angeles.

Salt Lake City is situated on the south slope of one of the spurs of the Wasatch Mountains. Being near to the lofty mountains, it thus secures a water supply from the streams which flow from them. The view of the snow-crowned peaks is magnificent, and in summer many people visit the cañons, the near-by mountain resorts and the lake.



Courtesy Commercial Club, Salt Lake City.

FIG. 55. — **Exchange Place, Salt Lake City.**

The city is a beautiful one. Its streets are commonly one hundred feet in width, and are lined with shade trees. The sidewalks are sixteen feet wide. The view from Fort Douglas on the high ground of the city is inspiring. Beautiful homes, churches, schools and business blocks seem to be set in a forest, while surrounding the city the fertile farms are seen.

Salt Lake City is quite a railroad center. It has shops, foundries, smelters, boot and shoe factories and other manufacturing plants. The Temple and the Tabernacle, both built by the Mormons, are two of the interesting sights of the city. In the Tabernacle, seating 15,000 people, may be heard one of the finest pipe organs in our country, as well as one of the best choirs. The organ was made in Salt Lake City many years ago. The Temple is a great granite structure which is not open to the public.

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FIG. 56.—Nonnezoshi Arch, Utah.

Ogden, the second city in size in Utah, is about thirty miles north of Salt Lake City. It is located on the Weber and Ogden rivers. A splendid road leads up Ogden Cañon, and here may be seen a great power dam. Electric energy is transmitted to Ogden and other towns, including Salt Lake City. Beet sugar, woolen goods, brick, flour, beer, brooms, candy and other things are manufactured in Ogden. It is also a railroad center.

In the southeastern part of Utah are some of the most wonderful works of nature in the world. These are great bridges of stone, formed by water slowly cutting arches in solid red sandstone rock. The part of Utah in which these bridges are located is far from railroads. In order to visit them, one must travel by stage and also on saddle animals for fifty miles or more.

The bridges vary from 100 to 300 feet in height, and from nearly 200 to 275 feet in length. They are so wide that if there were roads upon them, several wagons could stand abreast. As we look at these wonderful arches, so strong and yet so graceful, it seems as though they must have been fashioned by human hands. For how many centuries they stood before they were seen by man, no one knows. But although they are old, they will probably be for centuries to come the wonder and the admiration of those who see them.

CHAPTER XV

YELLOWSTONE NATIONAL PARK

Of the many wonderful sights which North America affords, none is more wonderful than Yellowstone National Park. It is a large tract of country, three times the area of the state of Rhode Island, situated chiefly in northwestern Wyoming. It is a region of high plateaus and still more lofty mountains, and of meadows covered with rich grass. In the shade of its forests dash bright streams, with pools where lurk the speckled trout. There are hundreds of springs from which boiling water gurgles, or is spouted high into the air.

The Indians told the early trappers and traders of this region, and one of these, John Coulter, visited it in 1806. His reports were not believed, but in 1870 our government sent a company of men to explore the country, and in 1872 Yellowstone National Park was created by Act of Congress.

As this is a public playground, and belongs to all of the people, it is not used as most parts of the country are. There are no farms, mines or towns. People have not been permitted to build railroads within the park, and we must be content to travel in coaches driven over government roads.

Although the park is so far removed from the centers of population, it is visited every year by thousands of people from all parts of the United States, and from foreign countries as well. In working its way across the mountains, the Northern Pacific Railroad follows the valley of the Yellowstone River for a long distance. A branch line has been built from Livingstone to Gardiner, which is situated just north of the edge of the park. The Oregon Short Line, which passes through western Idaho, has also constructed a branch which ends close to the western boundary.

The regular coaching trip through Yellowstone Park occupies about a week. There are several fine hotels which the government has given the transportation company the right to build. There are also camps where people may sleep in tents if they wish. Those who desire may drive through with their own conveyance, but automobiles may not be used. As the park is so lofty and so far north, it is open during the summer season only.

At the north entrance there is a great stone arch which serves as a gateway. This was dedicated by Theodore Roosevelt in 1903. About five miles from the entrance is Fort Yellowstone, the headquarters of the soldiers who guard the park. It is their duty to see that visitors do not leave fires, cut down trees, carry firearms or injure the geysers. Wherever you go, you will find the soldiers in their khaki suits.

The Mammoth Hot Springs, and the Pulpit and Minerva Terraces are near the north end of the park.

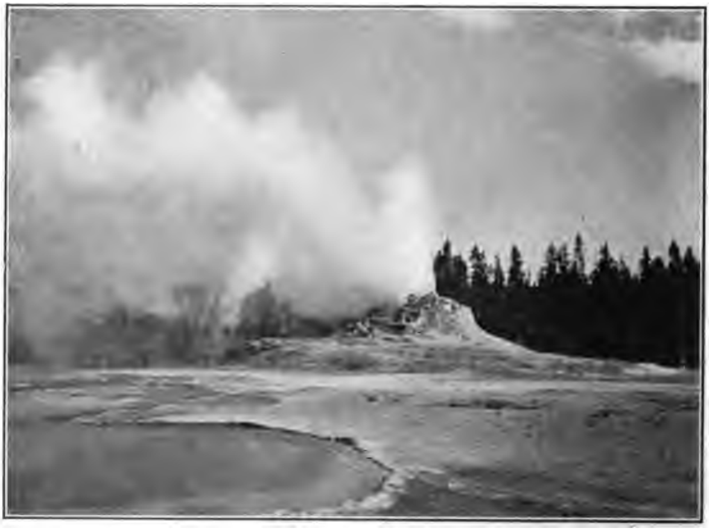


FIG. 57.—Giant Geyser.

Here great quantities of hot water issue from the earth, carrying mineral matter in solution. As the water cools, the material is deposited, thus building up these interesting formations. The prevailing color is a cream-white. In the pools the water is a beautiful blue.

Hot springs are found in all parts of the park, and there are more than one hundred geysers. A geyser

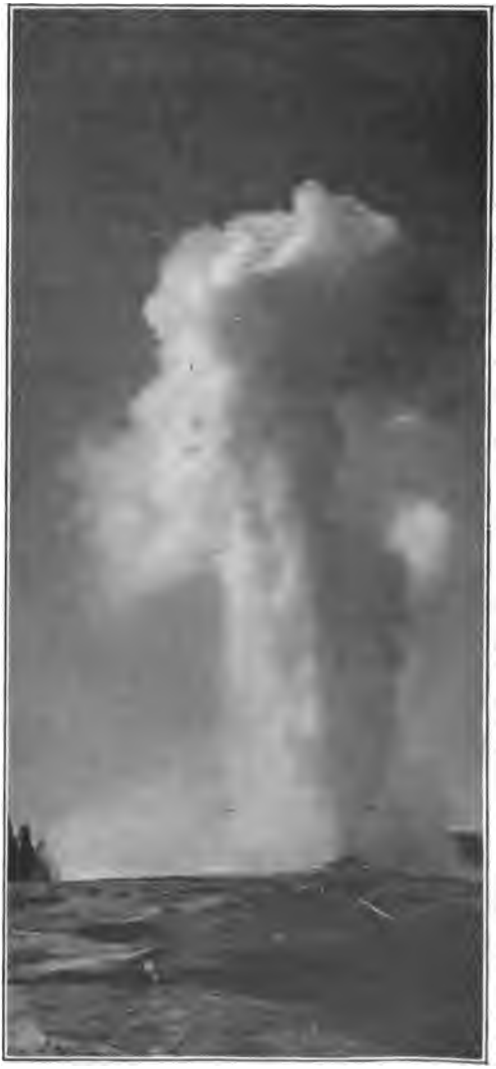


FIG. 58.—Old Faithful in Action.

is a hot spring that explodes at intervals. A small quantity of water in a shallow dish will heat quickly and uniformly when placed over a fire. The same quantity of water in a narrow tube will boil at the bottom before it does at the top.

The rocks of the earth's crust are cracked down to considerable depths, and water finds its way into these crevices. When it penetrates deeply, it becomes heated, for in all deep mines and wells people have found the temperature higher than it is at the surface. Owing to the narrowness of the cracks, the water may be far above the boiling point at the bottom, while near the surface it is not very hot.

When the boiling point has been reached, some of the water is converted into steam. A given quantity of water, when changed into steam, exerts about 1700 times as much pressure as it did before. We make use of this principle in our locomotives and steamships. When the force of the accumulating steam at the bottom of the tube is great enough to lift the water, an explosion occurs, and the tube is emptied. It gradually fills again, and the process is repeated.

The explosions may occur at short intervals, or they may be weeks or even months apart. In the same geyser the interval is quite regular, however. The water may be thrown but a few feet into the air, or it may be thrown a hundred feet or more. Usually there is a bowl-like basin at the upper end of the tube. In some instances this basin is shallow, and again it is many feet in depth. In some cases the geysers have built up cones, some of which are much taller than a person.

Let us observe one of these geysers getting ready for an eruption. The water boils and sends out little clouds of steam. Far below we can hear it gurgling, pounding and hissing. Occasionally little jets of water are thrown several inches into the air. From time to time a small quantity of water overflows from the basin. The rumblings grow louder; the water and steam are thrown higher and higher; and now with a roar a great mass of water and a cloud of steam are hurled higher than the top of a ten-story building.

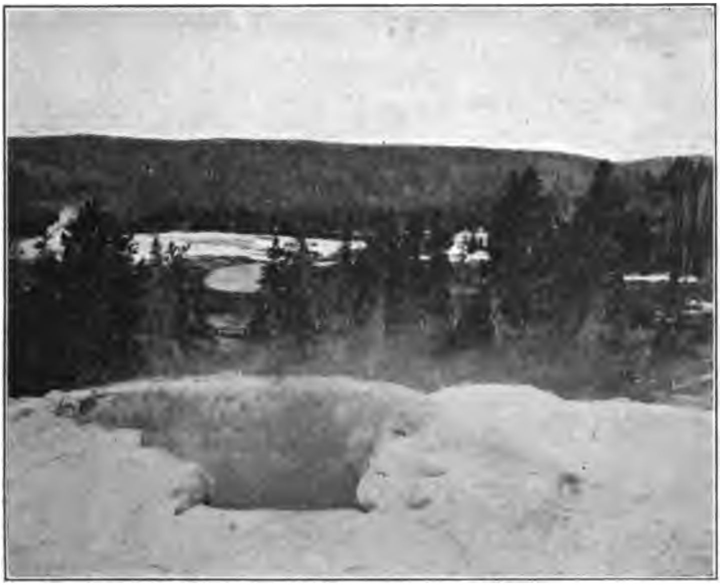


FIG. 59. — Basin of a Geyser after Eruption.

Our trip takes us to the shore of Yellowstone Lake. This is a large body of water whose surface is 7741 feet above the sea. When we ride upon the lake, we are higher than the summit of the most lofty peak in the

Appalachian Mountains. The Yellowstone River flows into and out of this lake, and our road follows the bank of the stream for miles. Every time we look into its clear waters we can see trout.

The park is a home for wild animals, for, as you have already learned, people are not permitted to carry firearms. We see graceful deer close to the roadside, and it is possible to approach within a few feet of them. Elk and buffalo may occasionally be sighted. In the evening, bears come to eat the refuse from the hotel kitchens.

Two young black bears are now leisurely examining the garbage. They turn things over with their paws, searching for the most desirable morsels. Now they stand upon their hind feet and eye the human audience curiously. What an awkward, shuffling walk they have! There is a noise in the brush, and out stalks a large silvertip. The blacks take to their heels, and, entering the timber on the opposite side of the open space, one climbs a tree and crawls well out on to a branch. Although the bears do not seem ferocious, the soldiers will not permit people to go very close to them.

In cutting its way through the mountains of the park, the Yellowstone River has eroded a great cañon, like that of the Colorado, but not so deep. We drive and walk along the river and gaze down into the depths where the water is even now at work. The coloring of the rocks is brilliant and variegated.

Here are the great falls more than twice as high as the Niagara. See how the river leaps through that notch and falls in a great white and green sheet into the pool below. By means of a long rope we can lower ourselves over the steep bank, and reach the level of the stream just below the falls. We can scarcely hear conversation because of the thunder of the waters. The flying spray is decorated with rainbows. This is one of the most beautiful sights in the "Wonderland of America."

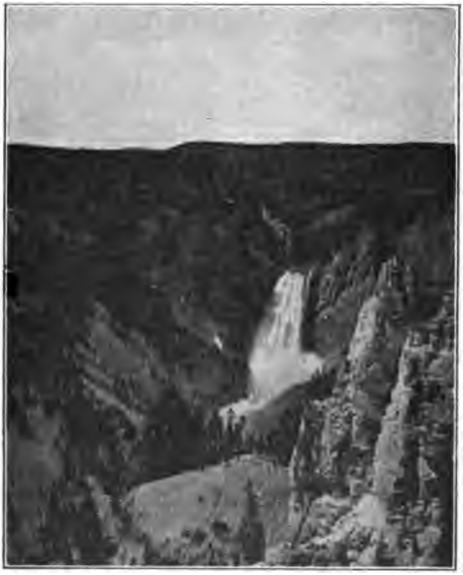


FIG. 60. — Great Falls of the Yellowstone.

CHAPTER XVI

THE GOLDEN STATE

EVERY winter thousands of people in all parts of the United States leave their homes and travel to California, where they spend a few weeks or months. When sleigh bells are ringing in New England and in the Middle West, when children are snowballing and skating, when trees are leafless and the birds have gone to the South, California is a land of summer. Then you may see golden oranges ripening on the trees. Gardens are filled with the beauty and the fragrance of many kinds of flowers. Delicately tinted humming-birds flash in the sunshine as they gather the sweet from the blossoms, and there is no sign of winter except the crowns of white worn by the lofty mountain peaks.

The southern boundary of California is about 700 miles farther south than Chicago or New York, so, of course, the winters would be warmer than they are in these cities. This is not the only reason, however. You see by looking at the map that California faces the Pacific Ocean. The temperature of this great body of water changes very little. It is never cold, and the winds blow directly from it to the land. Consequently the portion of California near the coast has a very uniform climate.

California has two seasons instead of four. These are the wet and the dry. Winter is the rainy season, and lasts from November until May. There is much bright weather during the rainy season, however. Between the first of May and the first of October, rain very seldom falls. The fields and hills get brown and dry, and the smaller streams cease to flow. During the long dry season lawns, gardens and fields are irrigated with the water that is brought from the mountains.

But there are portions of California in which cold weather occurs during the winter. The Sierra Nevada Mountains extend like a great wall along the eastern boundary of the state. Many of their peaks are more than 14,000 feet in height. Upon some of them are small glaciers. The passes in these mountains are very high, and few of them are crossed by rail or wagon roads. While these mountains make travel and transportation expensive, they are of great value. They chill the moisture-laden atmosphere in winter, and so cause rain and snow upon their windward slopes. From them flow the streams which water the valley, and from some of these is developed electric power. Great forests clothe the mountains, and this leads to extensive lumbering. Millions of dollars' worth of gold are mined yearly in the Sierra Nevada Mountains.

FIG. 61. — El Capitan, Yosemite Valley, California.

The discovery of gold in California in 1848 was followed by a rush of people into the state from all parts of our country, as well as from other countries. In those days there were no railroads across our Western mountains, and many of the gold seekers journeyed to California in canvas-covered wagons drawn by oxen or horses. Others went by water around Cape Horn, while some crossed the Isthmus of Panama and then continued their ocean voyage.

The Sierras are

highly prized for their scenery, also. There are many wonderful cañons on the west slope, where the rushing streams have cut hundreds and even thousands of feet into the solid rock. Perhaps the most beautiful of these is the Yosemite Valley. This cañon is a part of the valley of the Merced River. In Spanish, Merced River means "The River of Mercy."

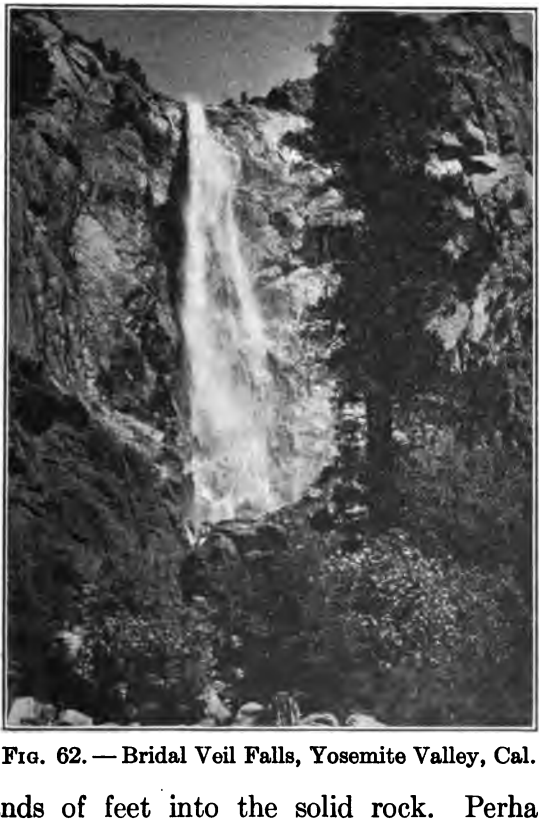


Fig. 62. — Bridal Veil Falls, Yosemite Valley, Cal.

The most beautiful part of the cañon is about seven miles long, from a half mile to a mile in width, and 2000 to 3000 feet deep.

Here is a great granite cliff known as El Capitan, "The Captain." It is perpendicular, and five times as high as the tallest building in New York City. On the opposite side of the valley are the Bridal Veil Falls, a feathery, filmy sheet of water about 900 feet high and so small in volume as to be swayed back and forth by the wind.

We pass a mile of wonders that face us on all sides, and now we stand before the most lofty waterfalls in the world — Yosemite Falls. From where the stream leaps out of its bed, to where it strikes the valley below, the distance is 2600 feet. The falls are divided into three parts, the highest of which is about nine times the height of Niagara.

Farther up the valley are two other wonderful falls, Vernal and Nevada. Vernal means "green," and the fall is given this name because of the beautiful green of the water, and of the forest trees that border it on either side. The water of Nevada Falls, just above Vernal, strikes a projecting mass of rock on the face of the cliff. Breaking into spray, the mist rises from the water in a mammoth white sheet, painted with the colors of the rainbow.

Above the Nevada Falls is a branch of the Yosemite

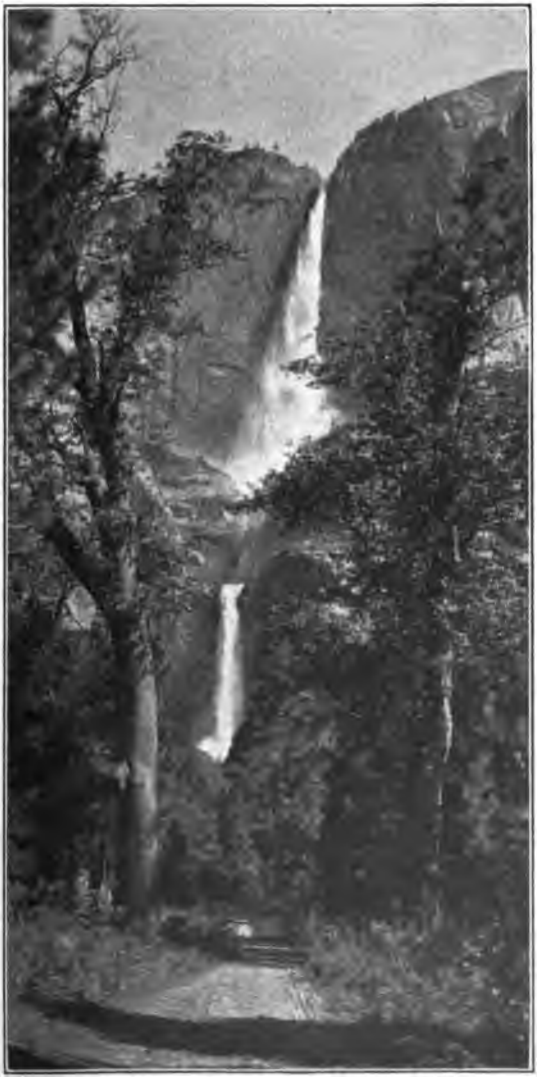


FIG. 63. — Yosemite Falls, Yosemite Valley, Cal.

known as Little Yosemite. Here are spires, domes and falls, and here may be seen rock smoothed and scratched by the great glacier which helped in forming Yosemite.

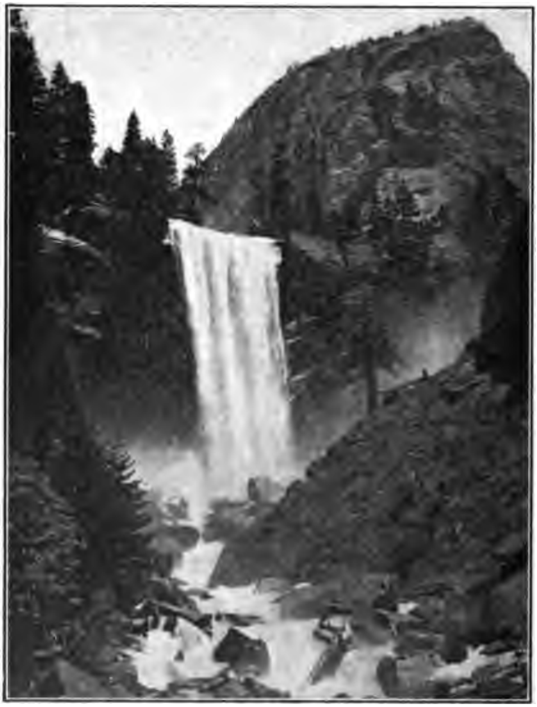


Fig. 64. — Vernal Falls, Yosemite Valley, Cal.

Some miles to the southwest can be seen Glacier Point. From an overhanging rock one may drop a stone which will strike the floor of the valley 3000 feet below. From this lofty perch cattle grazing in the valley look no larger than sheep, and the swiftly flowing Merced gives little idea of the speed with which it rushes onward to join the San Joaquin.

Far north of Yosemite, beautiful Lake Tahoe gleams like a gem in the lofty Sierras. It is some twenty miles long and ten miles wide, and completely surrounded by mountains, many of the peaks of which are snow-cov-

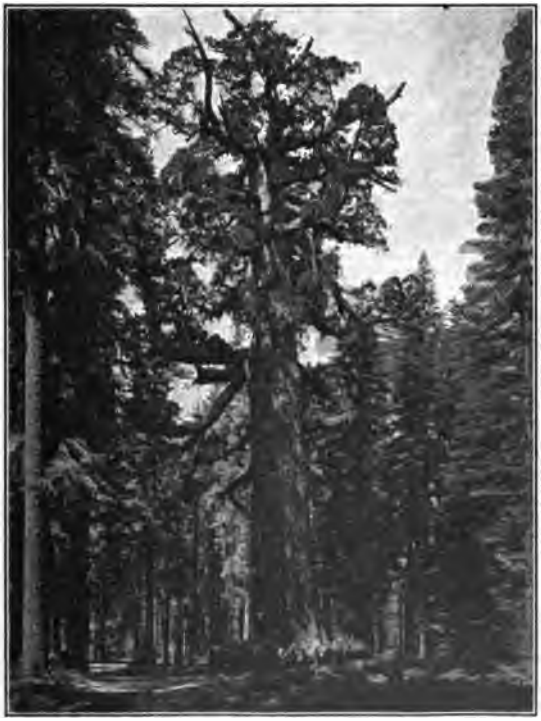


Fig. 65. — "Grizzly Giant," Mariposa Big Tree Grove, Cal.

ered even in the summer. From the deck of the little steamer which carries us around the lake, we can see tents and cottages shaded by the forest trees that extend almost to the water's edge.

Along the western slope of the Sierras are found groves of "big trees." The trunks are wonderfully symmetrical and rise for great heights without branches. It is difficult to realize how large these trees are. A flour barrel is five and one half feet in circumference. At its base the "Grizzly Giant" is 104 feet in circumference. Here is the "California," and we can scarcely believe our eyes when our stage, drawn by four horses, passes through an opening in its trunk.

Perhaps the most wonderful thing about these trees is their great age. It is believed that some of them were hundreds of years old when Christ was upon earth. Here they have stood resisting the storm and enjoying the sunshine, while many of the works of man have crumbled to dust.

While the mountains yield their harvests of gold, the Great Valley and the Southern Coastal Plain produce crops which are far more valuable than the yellow metal. Vast fields of wheat are found from San Diego almost to the north end of the state. The level land makes cultivation and the harvesting of the crop easy, and there are no summer storms to damage the grain. On some of the ranches machines are employed which cut and thresh the wheat and put it into sacks. Much wheat is exported.

Great quantities of oranges and lemons are produced, especially in the south. Orange picking begins just before Christmas, and every day for several months many carloads are shipped to Eastern cities. What other part of the United States produces oranges and lemons?

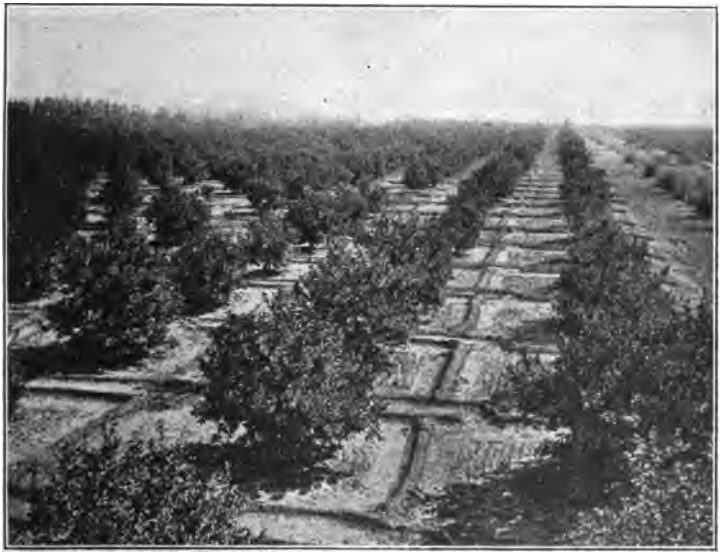


FIG. 66. — An Orange Grove in Southern California.

During the winter these citrus fruits are sometimes in danger on account of frost. When the forecaster in the office of the Weather Bureau predicts a hard frost, *briquettes*, made of soft coal and crude oil, are burned in wire

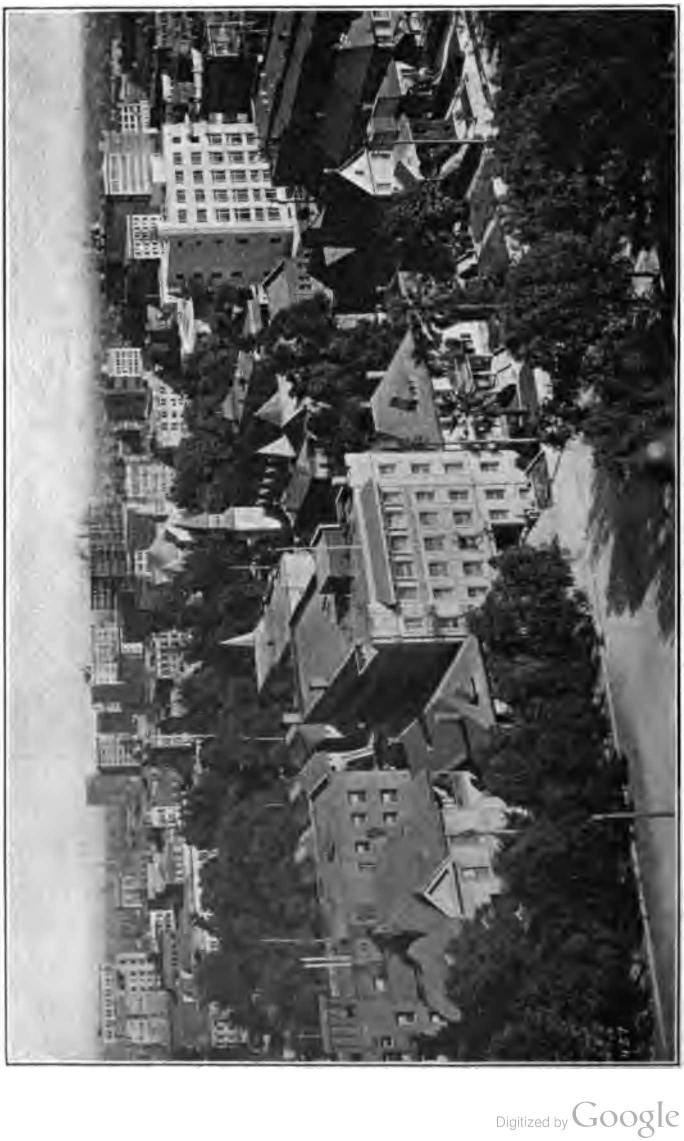


Fig. 67.—A View of Los Angeles, California.

baskets placed in the orchards. Only a small amount of heat is required to protect the fruit.

Peaches, apricots, plums, pears and other fruits are raised in all lowland parts of the state. Most of the deciduous fruit is canned or dried. Drying takes place in the open air, for it very seldom rains during the summer.

Much petroleum is produced in the southern part of the state. This is especially valuable, for California has very little coal. The locomotives burn oil, because coal is so expensive. Oil is also used on streets and country roads to keep them from becoming dusty.

Except where man has reclaimed it, most of southeastern California is a desert, and in the summer it is very hot. The great Colorado River flows along the eastern boundary of a portion of this region. We have already told you of the reclaiming of the delta of this river.

Los Angeles, the largest city in southern California, has grown very rapidly during the last twenty years. It was founded by the Spanish in 1771. In 1848 it was taken by the Americans. The Coastal Plain upon which the city is situated is very fertile, yielding grains, fruits, potatoes, celery and other crops. Great quantities of petroleum are produced, also. The mining of gold in the southeastern part of the state, and even in Arizona, has helped the city, while its climate, as you have

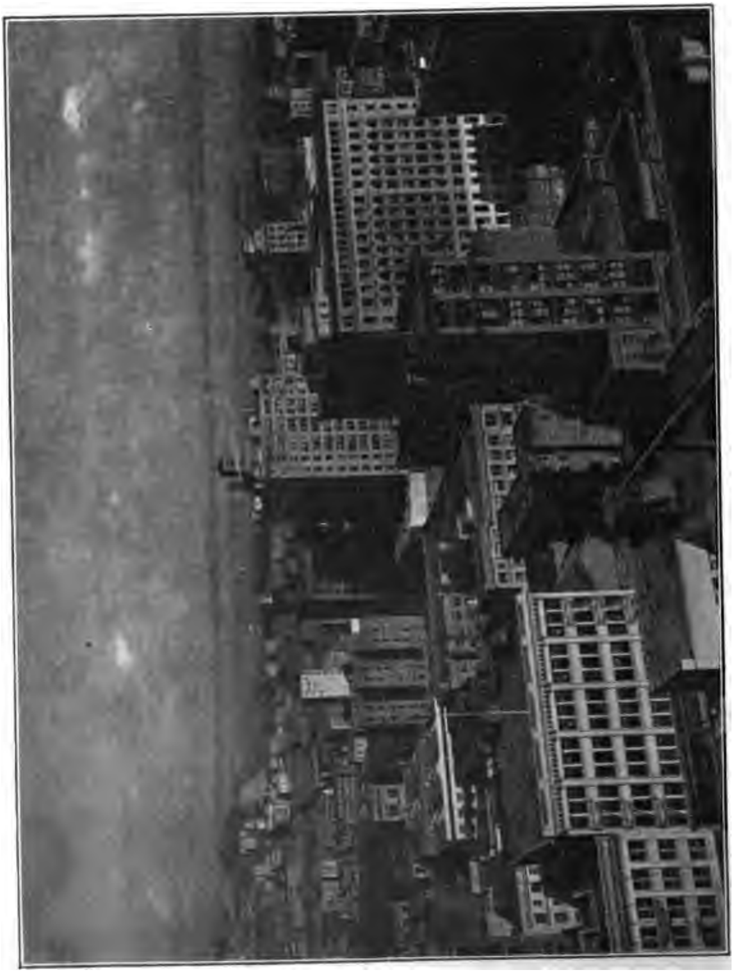


FIG. 68. — View from Top of Chronicle Building, San Francisco.

learned, attracts thousands of people every winter, many of whom settle in the state.

Los Angeles is adding to its water supply by bringing to the city a part of the water of Owen's River, 200 miles away. This will furnish an abundant supply of water as well as much power. The government is spending several millions of dollars in making a great harbor at San Pedro, nearly twenty miles distant.

Fresno, in the San Joaquin Valley, is the center of the great raisin district of California. Rain is almost unknown during the grape-drying season, and fog is uncommon. This is a very necessary condition, as the grapes are dried in the open air. Many persons are employed in picking the grapes and in handling the raisins.

Stockton is connected with the San Joaquin River by a navigable channel. It draws upon the great wheat fields of the valley, and manufactures much flour. The combined harvesting machines, used on the immense wheat ranches of California, are made here. Much farm produce is shipped down the river.

San Francisco is situated upon a peninsula which projects northward into the bay of the same name. The great valleys of the Sacramento and the San Joaquin lead to the bay, so San Francisco naturally became an important port and a large city. Here ships may be seen from all parts of the world. Tea, silk and rice from

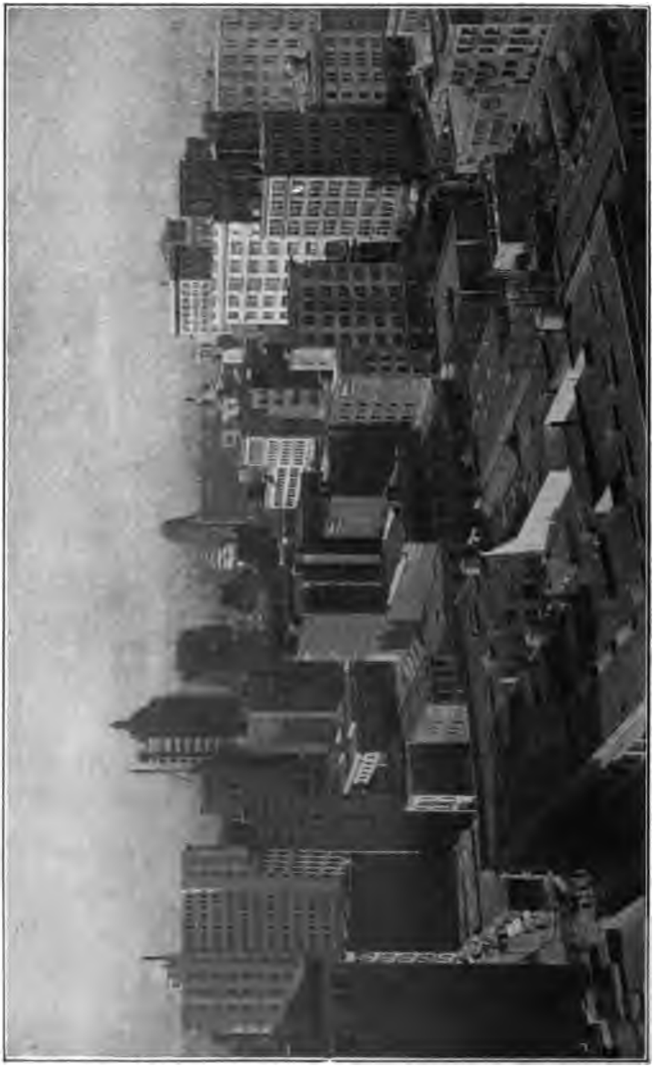


FIG. 69.—**San Francisco from Top of Merchants Exchange Building.**

China, "copra," or dried coconut, from the Samoan Islands, sugar from the Hawaiian Islands, coal from New Zealand, lumber from Washington and Oregon, are some of the things unloaded upon her wharves. Directly across the bay is Oakland, and the two cities are connected by ferry as are New York and Jersey City.

At the junction of the Sacramento and American rivers is Sacramento, the capital of California. It is in a very productive region, and handles fruits, wheat, wine and lumber. Considerable manufacturing is carried on.

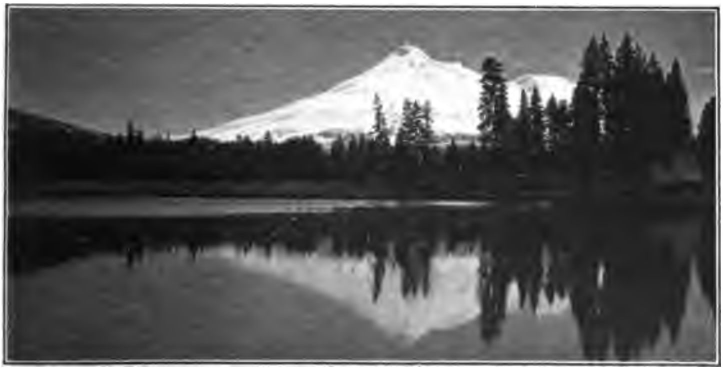


FIG. 70.—Mt. Shasta from Grass Lake, California.

The great central valley extends northward almost to Oregon. In the early summer, fields of wheat stretch as far as the eye can see. Much fruit is raised, also. As we near the north end of the state, we see Mt. Shasta standing guard over the valley. More than 14,000 feet above the sea it lifts its snow-crowned head. Five small glaciers originate in its fields of perpetual snow. Some time in the past the beautiful mountain was rent by volcanic action. Melted rock poured from its crater and spread over much of the country at its base. The Sacramento River is to-day cutting its valley through this hardened lava. As we take a last look at this beautiful cone-shaped peak we hope that it may always keep as peaceful watch over the valley as it now does.

CHAPTER XVII

THE COLUMBIA COUNTRY

BUT three states border upon the Pacific Ocean, while eighteen are washed by the waters of the Atlantic and the Gulf of Mexico. The region drained by the Columbia River was once known as the *Oregon Country*. It was given this name because the river was then called the Oregon.

Although the Indians told the white men who sailed along the coast, of this great river of the Northwest, they did not discover it for a long time. A bar of sand hides its mouth, and so it was passed unobserved. In 1792 Captain Gray, who had previously searched for the river's mouth, found it and sailed for fifteen miles upstream. He called the river *Columbia*, after his ship.

The Columbia is a mighty stream, and it drains a large and rich area. That portion of the basin west of the Cascades is well watered. East of these mountains, both Washington and Oregon are rather dry, but the sources of the river draw upon the snow fields of the mountains of British Columbia, and upon those of the Bitter Root, Teton and other mountains in our own country.

Ages ago volcanoes poured out great quantities of lava upon much of the Columbia Country. In places the rock formed by the cooling of the lava is several thousand feet thick. In this plateau, the Snake, the great southern tributary of the Columbia, has cut a cañon a half mile deep.

The Columbia is not so navigable as is the St. Lawrence or the Mississippi, but it is much more valuable in this respect than is the Colorado. The government has appropriated a large sum of money for the purpose of dredging a deep channel across the bar. This will add greatly to the value of the river. The Columbia is used extensively as far as Portland, about one hundred miles from the sea. Where the river cuts through the Cascade Mountains there are rapids which obstruct navigation. This section is known as the *Dalles.* A canal has been built around the obstacle so that small boats travel for a long distance up the river.

In mountainous regions where railroad building is difficult, roads generally follow the large rivers. This is true of the Columbia. Railroads follow both banks for several hundred miles. A trip along this great river is very enjoyable. Forests line its banks, and from them much lumber is obtained, some of which is rafted downstream. Beautiful falls leap from cliffs where nature has planted bushes, vines, ferns and flowers as well as stately trees. There are rocks rising spirelike above the river which look as though they might have been carved by the chisel of a giant. Here the train dashes around a cliff which seems ready to crowd it into the river below, and there it flashes into the blackness of a tunnel which has been cut through a frowning wall of rock.

Fig. 71. — Rooster Rock, Columbia River, Oregon.

All along the river are establishments where salmon are canned, and from which they are shipped. Every year the salmon run from the ocean far up the river to *spawn;* that is, to lay their eggs. Some of the fish weigh as much as one hundred pounds each. They are caught in large nets and also by means of "fish wheels." Some of these wheels are built beside the stream. Others are fastened to the stern of a boat. The wheels have large wooden paddles, and as they revolve in the water a fish is occasionally lifted out and dropped into a place made to receive it.

The Columbia drains a large and productive area, therefore there are many towns and cities located upon its banks. Near the mouth is Astoria. This city was founded in 1811 by the fur company of which John Jacob Astor was the head. Great quantities of canned salmon are shipped from here yearly. Lumber is exported, also, and there is some ship building.

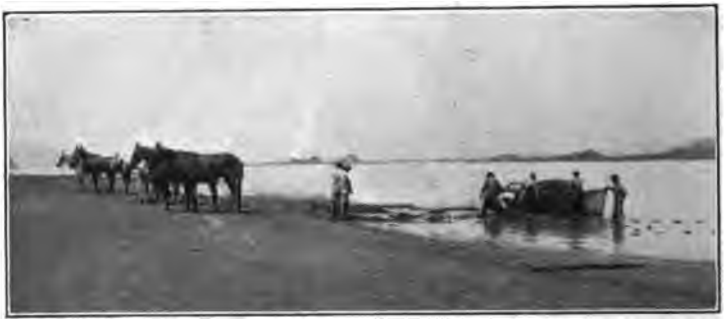
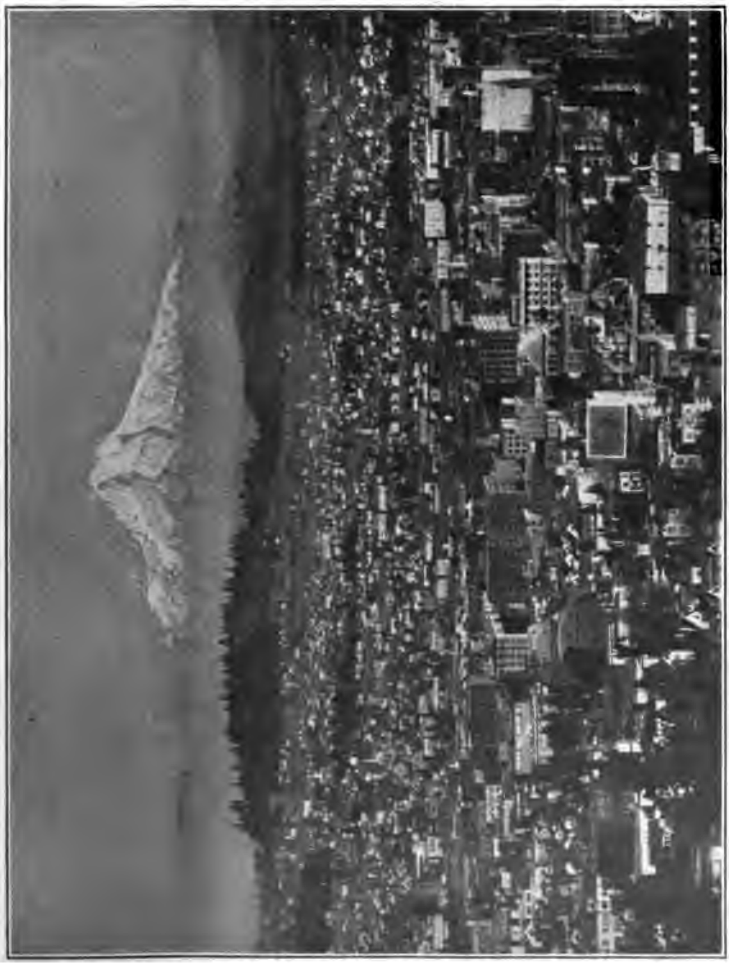


FIG. 72. — Seining for Salmon on Columbia River, Oregon.

About one hundred miles from the mouth of the Columbia, the Willamette River enters from the south. This river drains a very rich valley. There are fields of wheat, hops and flax, and orchards where apples, pears, cherries and other fruits are raised. Twelve miles above the junction of the two rivers stands Portland. It is



Courtesy Portland Commercial Club.

FIG. 73.—Mt. Hood from Portland, Oregon.

situated upon both banks of the Willamette. Near the river the land is flat, but it rises rapidly to tree-clad hills in the western part of the city. Electric cars take the people from the business section to this residence district. The view from the hills is magnificent. We look over the busy city to the river with its ships moored at the wharves. They are loading with lumber, wheat, flour, salmon, wool, or they are unloading tea, coffee, rice, sugar and other things. Far to the eastward, if the day is clear, we see Mt. Hood, whose snow-crowned head is 14,000 feet above sea level. It was once an

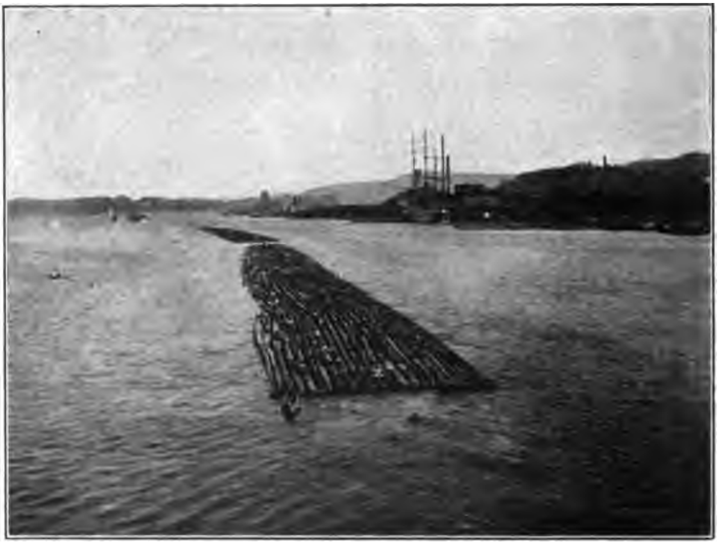


Fig. 74. — A Raft of Logs on the Columbia at Portland.

active volcano, but its fires have died out, and now glaciers creep slowly down its slopes. To the northward can be seen the great Columbia rolling to the sea.

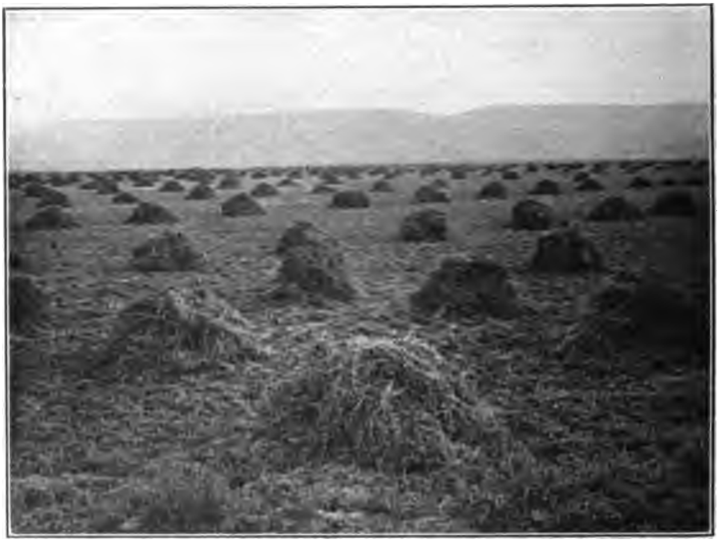
Large ships reach Portland, and it draws upon the trade of the whole basin of the Columbia. We have seen that railroads follow the river, and for more than one hundred miles a railroad parallels the Willamette. This gives Portland a decided advantage as a receiving and distributing point.

The great manufacturing cities of the world are those that have cheap power. Portland draws upon the coal fields of Washington and British Columbia. She also has streams which are capable of furnishing much power. The Sandy River, rising on Mt. Hood, enters the Columbia just east of Portland. As this river falls thousands of feet, it can supply a vast amount of energy.

You remember that Minneapolis, our greatest flour-milling city, owes its importance in part to the Falls of St. Anthony, which furnish power. In the eastern part of Washington is a city similarly situated. This is Spokane, built beside the falls of the Spokane River, a tributary of the Columbia. Much wheat is raised on the surrounding plains, a part of which the mills at Spokane grind into flour.

You have learned that when the winds blow from large bodies of water to the land, they moderate the climate. The Columbia Country has a much milder climate than that of our New England states. Along the coast the temperature seldom drops to the freezing point, and in Portland little snow falls. On the highest mountains it is always winter.

That part of Washington and Oregon lying west of the Cascade Mountains has an abundant rainfall. It is so damp that moss hangs from the trees as it does in the Southern states. East of the mountains it is much drier. Here irrigating canals have been dug, and vast tracts of land formerly covered with sagebrush now support splendid orchards and farms. The apples



Courtesy Portland Commercial Club.

FIG. 75. — Results of Irrigation in Eastern Oregon.

are excellent in flavor, and bring a high price in our own and in European markets.

In the southern part of Oregon is found one of the most wonderful lakes in the world. It is called *Crater Lake,* because it occupies the crater of an extinct volcano. Long, long ago a lofty volcano rose several thousand feet above where the lake now is. A terrible explosion carried away the upper part of the mountain, leaving a great bowl in the remainder. This is now partly filled with water.

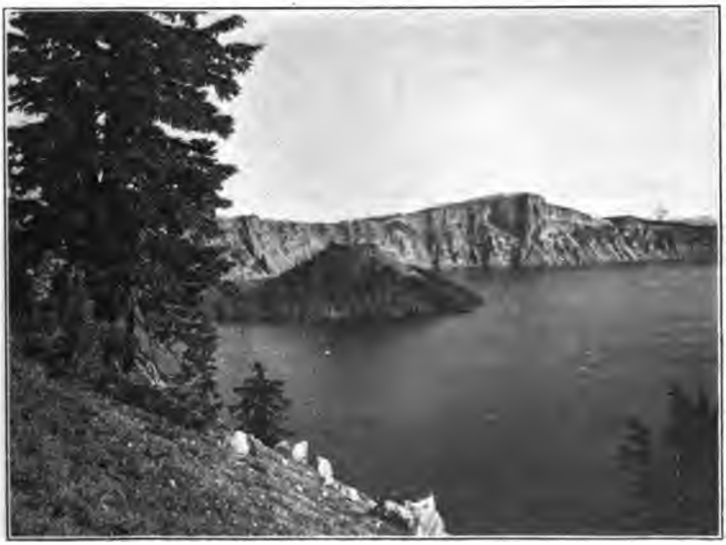


FIG. 76. — Crater Lake, Oregon.

The visitor to Crater Lake must travel by wagon or pack animals for a considerable distance after leaving the train. When he has climbed to the top of this ancient volcano, now called Mt. Mazama, he looks down upon a beautiful little lake. It is almost circular in shape, and about five miles in diameter. In it is a small rocky island, formed by some of the lava that was squeezed out during the last eruption.

Crater Lake is surrounded by a steep wall almost like the sides of a basin. This varies from 500 feet to nearly 2000 feet in height. In its deepest part the lake is almost 2000 feet deep. If you were to lower a thermometer into the water, you would find that it gets colder for about half the distance to the bottom, and then gets warmer. This seems to indicate that the old volcanic fires have not entirely died out.

Looking at the map you will see that the Columbia forms a large part of the boundary between Washington and Oregon. If we were to follow the river across Washington, we should find in the north central part of the state a lake almost as wonderful as the one of which you have just read. A ridge of bowlders, gravel, sand and clay separates the Columbia from this body of water, which is known as Lake Chelan. A stage will carry us over this ridge, and when we reach the foot of the lake we find a small steamer upon which we can continue our journey.

The scenery, at first tame, soon becomes grand. We are upon a narrow body of water from a half mile to two miles in width. It is really a lake in a cañon, for the mountains tower on either side 4000 feet above us. Many little streams tumble over the cliffs into the lake. In the deepest part it is 1400 feet from our boat to the bottom.

For more than fifty miles we follow this beautiful lake, and then find a stream emptying into it, which has its birth in a snow field miles away. Water is not the only tribute which the stream brings, for great quantities of sand and mud are deposited, building up a delta.

Lake Chelan, like many other lakes, was caused by glacial action. A great river of ice once flowed from the eastern slope of the Cascade Mountains down the cañon now partly occupied by the lake. The ice was probably 3000 feet thick, and it deepened the cañon, and rounded off the cliffs and crags. Finally, its slow onward march was ended by the power of the sun. Here it was compelled to drop the rocks, sand and clay which it had been pushing before it and carrying within and upon it. This material formed a ridge known as a *moraine*, which separates the lake from the Columbia. A small stream, called the Chelan River, has cut its way across the moraine, and so the lake really belongs to the Columbia drainage.

You would enjoy a visit to the Columbia Country. It has a mild climate. It has beautiful mountains and fertile valleys. There are great fields of wheat, and orchards yielding trainloads of choice fruits. Its rivers wind their way through forests of giant trees, and past thriving cities. But none of the sights are more wonderful or will be remembered with greater pleasure than Crater Lake and Lake Chelan.

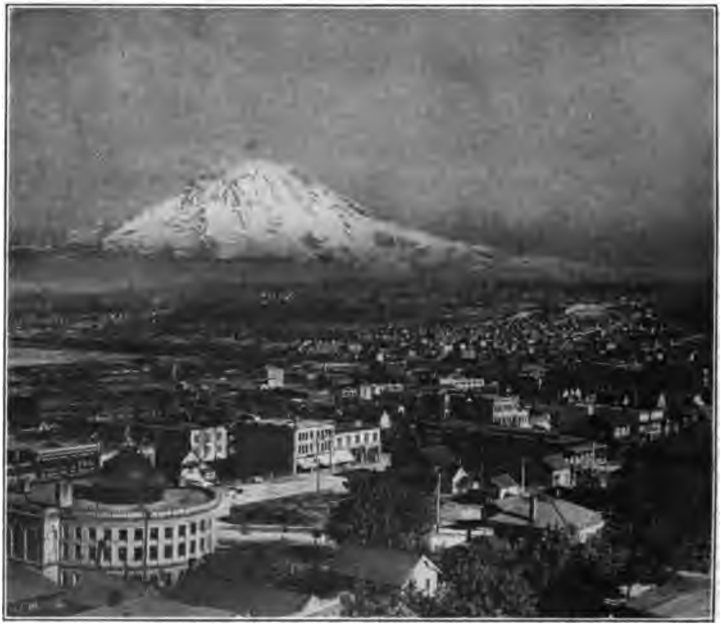


Fig. 77. — Tacoma, Washington.

In the northwestern part of Washington there is a large bay. From this bay Puget Sound extends southward for about 150 miles. The sound is very irregular in outline. On the west are the Olympic Mountains. On the east are vast forests yielding immense quantities of lumber. In the distance gleam the snowy peaks of the Cascade Mountains.

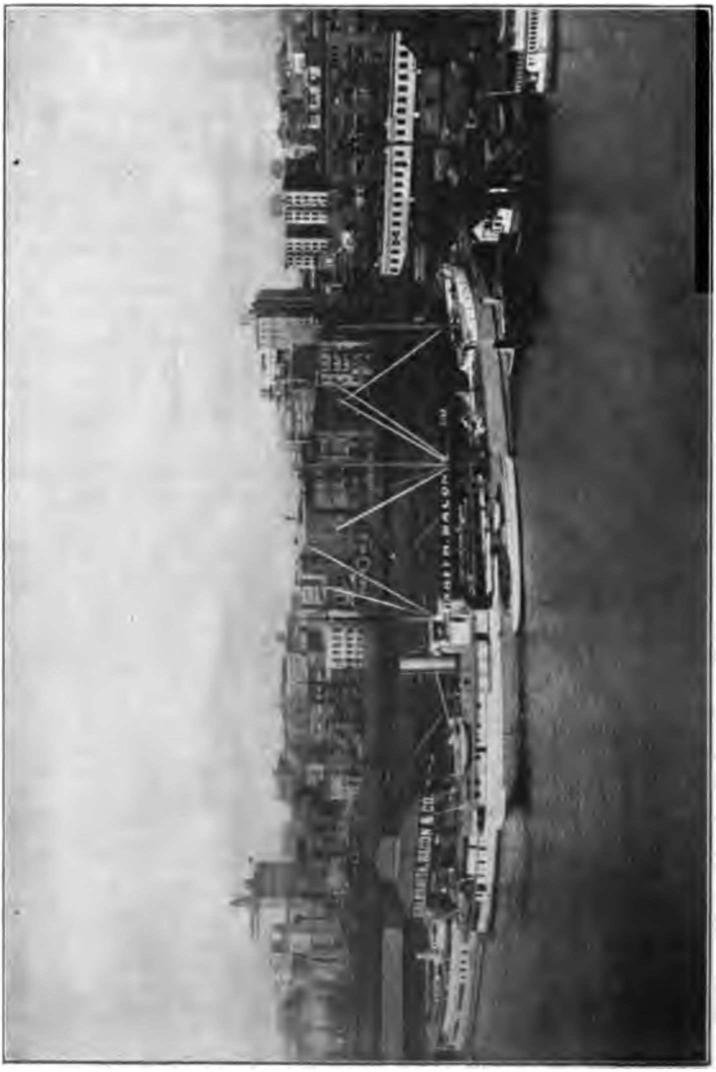
Near the south end of Puget Sound is the great city of Tacoma on Commencement Bay. The city is built upon terraces affording a splendid view of the sound and the mountains. To the southeast Mt. Rainier, sometimes called Mt. Tacoma, lifts its head more than 14,000 feet above the sea.

Washington has coal fields not far from Tacoma. The rivers that flow down the west slope of the Cascades furnish much cheap power. As already pointed out, this is a region of extensive forests. Much waste material from the lumber mills is used for fuel.

Because of these advantages, Tacoma does a great deal of manufacturing. Timber is cut into boards, scantling, and shingles; sashes, doors, blinds, barrels, boxes, wooden water pipe, and furniture are made. Ore is smelted, flour is manufactured, and salmon are canned.

About twenty-five miles north of Tacoma, on Elliot Bay, is the city of Seattle. Like Tacoma, Seattle is built upon hills rising steeply from the shore of the sound. Lake Washington, a body of water twenty-two miles long, and two to four miles wide, lies east of the city. A canal is to be dug connecting this lake with Puget Sound.

A large sum of money is being spent in cutting down

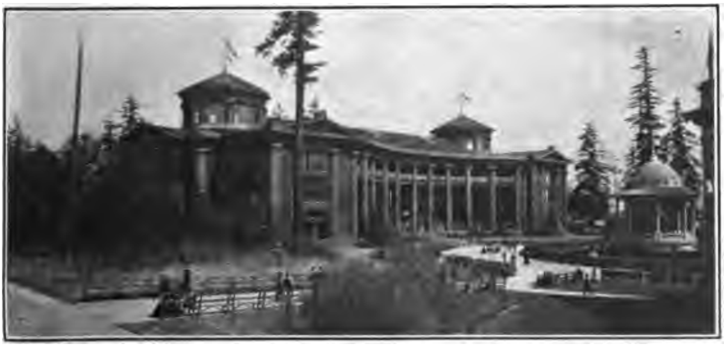


Courtesy Seattle Chamber of Commerce.

FIG. 78.—Section of Seattle Waterfront showing Local and Coast Shipping.

the hills and filling up the valleys. This will make the grades of the streets much more uniform. The work of cutting down is being done by water forced through pipes. Many houses have been moved in order to make this regrading possible.

In 1852 Henry L. Yesler built a store and a sawmill on the ground now known as Pioneer Square. This square is to-day the center of a great city, and all about it are lofty buildings. On the square stands a totem pole, brought from Alaska.



Courtesy Seattle Commercial Club.

Fig. 79. — Forestry Building erected for Alaska-Yukon-Pacific Exposition at Seattle, 1909, now used by the University.

Seattle carries on extensive commerce with Alaska, from which it receives ore, furs and salmon. Food, clothing, furniture and machinery are shipped to Alaska. A great deal of commerce with the Orient is carried on through Seattle. Cotton and wheat are among the commodities shipped. From Seattle, as well as from Everett, Port Townsend and Bellingham, lumber is exported, some of which reaches southern California.

Seattle has a mild climate, water power and beautiful scenery. Because so much material is sent to the city to be from there reshipped, it may be called a forwarding city. No part of the United States has more progressive cities than those found upon the shore of Puget Sound.

CHAPTER XVIII

ALASKA

ALASKA, the largest territory of the United States, was purchased from Russia in 1867 for the sum of $7,200,000. At that time very little was known of the region, and most people believed that our country had made a very poor bargain. There is much of Alaska that is not well known to-day, but it has paid for itself many times over. In fact, the value of the gold produced by Alaska in 1908 was nearly three times as great as the purchase price.

If you were to make a journey from the extreme southern to the extreme northern part of this peninsula, it would be equal in length to a journey from Florida to Maine. The distance from the eastern boundary of Alaska to its most westerly islands is as great as from New York to Los Angeles. It would require the combined areas of Great Britain, France, Germany and Italy to equal it, while it is almost four times as large as California, and thirteen times the size of New York State. In all of this immense area there are fewer people than there are in the smallest state in the Union.

There are three times as many people in the city of Washington as there are in Alaska.

The map shows you how very irregular the coast line of Alaska is. Long, narrow bays or inlets extend into the land, especially in the southern part. Such inlets are called *fiords*. What other part of the coast of our country is similar? In these fiords the water is very deep, while the shore rises abruptly from their edges. In times past glaciers have plowed through these valleys, and to-day glaciers terminate in many of them. Numerous beautiful islands fringe the southern coast. A steamer trip in the quiet water between these islands and the mainland is one that will always be remembered. There are volcanoes upon some of the islands farther to the north.

A continuation of the Coast Mountains of our Western states is found near the coast of Alaska. These mountains take much moisture from the winds that blow from the Pacific, and therefore the strip of country near the shore, especially in the south, has a very rainy climate. The climate is milder than it is on the Atlantic coast in the same latitude, because the wind blows from the ocean toward Alaska. At Sitka it either rains or snows on nearly one half of the days of the year, amounting, on the average, to one hundred and five inches of water annually. What is the yearly precipitation where you live? Snow remains on the

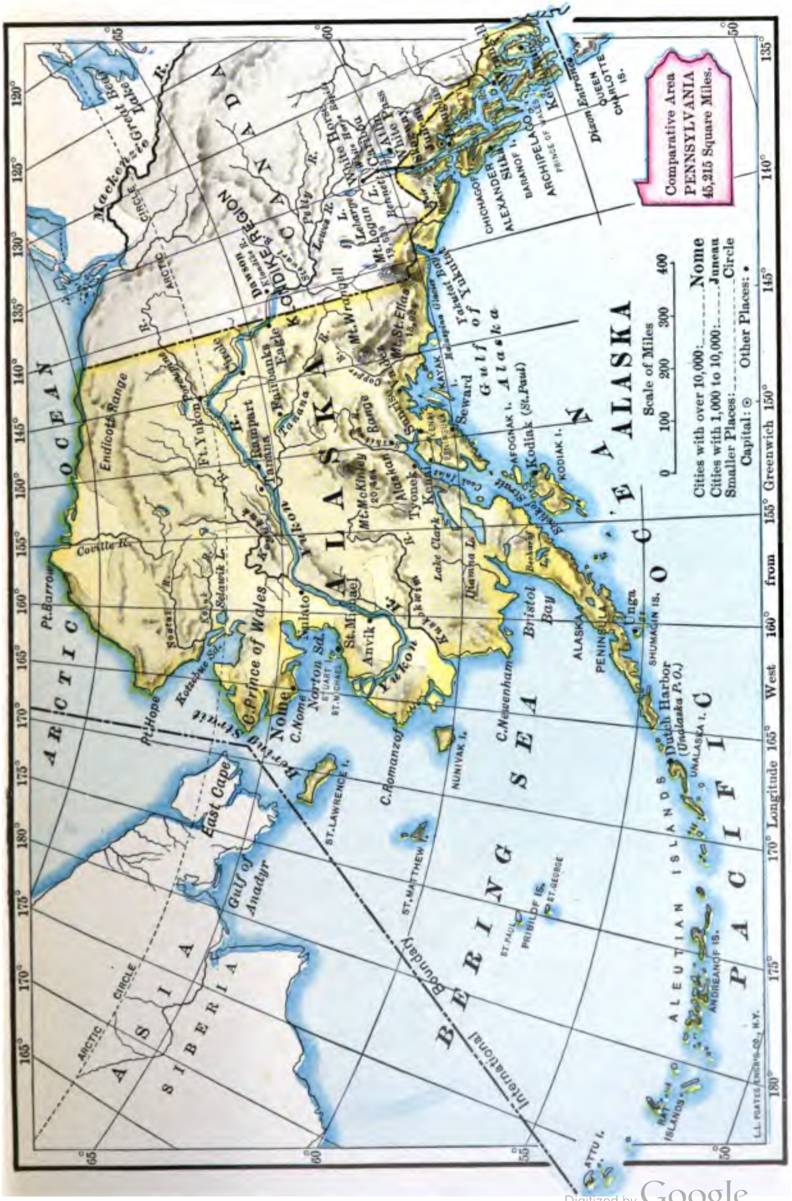

ALASKA
Scale of Miles
0 100 200 300 400
Cities with over 10,000: Nome
Cities with 1,000 to 10,000: Juneau
Smaller Places: Circle
Capital: ⊙ Other Places: •
Comparative Area PENNSYLVANIA 45,215 Square Miles.
Longitude West from Greenwich
ARCTIC OCEAN
PACIFIC OCEAN
BERING SEA
Gulf of Alaska
ASIA
SIBERIA
CANADA
A L A S K A
KLONDIKE REGION
Pt. Barrow
Pt. Hope
Endicott Range
Coville R.
Kotzebue Sd.
C. Prince of Wales
Bering Strait
East Cape
Gulf of Anadyr
Nome
C. Nome
Norton Sd.
St. Michael
Anvik
Nulato
Yukon R.
Ft. Yukon
Rampart
Tanana
Fairbanks
Eagle
Circle
Dawson
Mt. McKinley 20,464
Mt. Wrangell
Mt. St. Elias 18,024
Mt. Logan 19,539
Alaskan Range
Tyonek
Kenai
Seward
Cook Inlet
Lake Clark
Iliamna L.
Kodiak (St. Paul)
KODIAK I.
AFOGNAK I.
Shelikof Strait
Bristol Bay
C. Newenham
C. Romanzof
NUNIVAK I.
ST. LAWRENCE I.
ST. MATTHEW I.
PRIBILOF IS.
ST. PAUL
ST. GEORGE
ALASKA PENINSULA
SHUMAGIN IS.
Unga
Dutch Harbor (Unalaska P.O.)
UNALASKA I.
ALEUTIAN ISLANDS
ANDREANOF IS.
RAT ISLANDS
ATTU I.
Yakutat Bay
KAYAK I.
White Horse
White Pass
Skagway
Juneau
Sitka
Ketchikan
CHICHAGOF I.
BARANOF I.
ADMIRALTY I.
ALEXANDER ARCHIPELAGO
PRINCE OF WALES I.
Dixon Entrance
QUEEN CHARLOTTE IS.
Mackenzie R.
Great Bear Lake
ARCTIC CIRCLE
International Boundary
L. L. POATES ENGR'G. CO., N.Y.

FIG. 80.

ground but a short time at Sitka, and the summers are quite warm.

Most people who visit Alaska get no farther east than the Coast Mountains. Many of these peaks are very lofty. Mt. St. Elias, which is one of the corner stones in the boundary, is more than 18,000 feet in height. This mountain was discovered by Bering on St. Elias Day in the year 1741. Mt. Wrangell, farther north and west, is an active volcano. What is believed to be the highest mountain in North America is Mt. McKinley, which is situated north of Cook's Inlet. This great peak rises to an altitude of 20,464 feet, and can be seen for one hundred and fifty miles. To the eastward of these lies a great plateau. The plateau is much drier than the region along the coast, and it has little timber. As it is farther from the ocean, it is colder in winter and warmer in the summer than the coastal strip. Beyond the plateau are the Rocky Mountains, and east of these an extensive plain. Temperatures as low as 70° below zero are sometimes recorded in the interior.

If you live in a part of our country that is cold in winter, you know how the snow falls and blows into drifts several feet in depth. In the woods and on the north slopes of hills these snow piles remain after the warmth of spring has melted the snow in more exposed places. On the mountains of Alaska there is snow all of the year, for the heat of summer is not great enough to melt it. In fact, it often snows on the lofty peaks in midsummer. These great snow fields melt a little during the summer days, but the temperature falls below freezing at night. Thus the snow is gradually changed into ice. Slowly the ice moves down the mountain sides to the valleys below, and sometimes it extends to the sea.

Of course, the snow and ice are deepest in the mountain valleys, for the wind blows the snow into them, and it also slides in from the steep slopes on either side. The slowly moving masses of compacted snow and ice follow the windings of the valleys much as streams of water do. They push bowlders, pebbles, sand and clay before them, and this material polishes and grinds the sides and the floors of the valleys. These moving sheets and streams of ice are known as *glaciers*.

Every year many people go to Alaska to see the wonderful glaciers, for they are much larger than any of those in European countries. For about 1000 miles the steamers follow what is known as the "inland passage." The water is calm and deep. Forests clothe the lower part of the mountains and stretch their beautiful green mantle down to the sea. Around the higher, snow-crowned peaks, clouds gather, formed by the condensation of moisture in the winds blowing from the ocean. In speaking of this wonderful trip, a traveler has said: "Combine all that is best in the beauties of the Hudson and the Rhine, of Lakes George and Killarney, of the Yosemite and all of Switzerland, and you have a slight conception of the beauties of this green archipelago."

Imagine yourself on a steamer threading the "inland passage" on your way northward. At length you see in the water before you masses of ice moving forward like a white fleet, and rising and falling with the gentle movement of the waves. These are known as *icebergs*. Presently we hear sharp reports, and other sounds like the booming of cannon. These follow one another until we fancy there must be a naval battle going on behind some green island or projecting headland. A few minutes later and our ship is opposite an inlet, and near its head we can see a wall of white rising from the water. It is the front of a glacier, and as it slowly moves into the sea, masses of ice break from it, the smaller pieces producing sharp sounds, and the larger ones reports almost like the roar of cannon. This glacier was called by the Indians "*Huth*," meaning thunderer.

Other glaciers are passed, and at length we reach a large bay called Glacier Bay. It is about thirty-five miles wide and from six to ten miles long. Lofty mountain peaks rise on all sides, each sending its tribute of snow and ice to the bay. As our boat steams into this body of water, we meet fields of icebergs floating out to sea. They are of various shapes and sizes. The larger ones chill the atmosphere to such an extent that small banks of fog collect about them. There is an unusually large one that rises twenty-five feet from the water. If standing on land, it would be one hundred and seventy-five feet high, for only one seventh of an iceberg is above water.

We steam into an arm of the bay called Muir Inlet. At its head we see a mass of ice about two miles wide and from one hundred and thirty to two hundred and ten feet high. This is the front of the Muir Glacier, discovered by John Muir in 1878. The combined area of all of the wonderful glaciers in the Alps is not equal to this one Alaskan glacier.

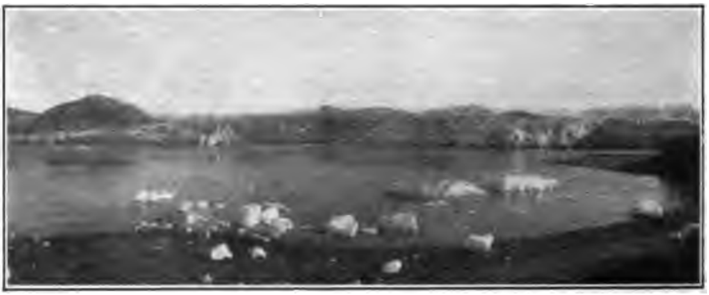


FIG. 81.—Front of Muir Glacier, Alaska.

Before the year 1900, ships landed their passengers quite close to the front of the glacier. In September, 1899, a severe earthquake occurred, and since that time there has been so much floating ice that this cannot be done.

We land at some distance from the ice front, and by means of our axes and ropes scramble to the surface of the glacier. Before us there stretches for miles a vast field of ice. In places the surface is quite level, and we have little difficulty in making our way over it. But be careful! There is an opening called a *crevasse*. It is a crack extending far down into the ice. We approach cautiously, cutting footholds with our axes. Peering into the crevasse, we see the most beautiful blue tints, and from far below comes the sound of water flowing over its icy bed.

The character of the surface of the glacier depends upon the nature of the land over which it moves. Where this is level, the surface of the ice is quite smooth, but when the land is rough, the ice is broken and very uneven.

You have learned that glaciers move. They move so slowly, however, that as we stand upon this one it seems to be absolutely stationary. Near the ice front the Muir Glacier moves at the rate of seven feet per day. At this rate it would take seven hundred and forty-five days, or more than two years, to move one mile!

Alaska is not all snow and ice. During the short, warm summers vegetation grows very rapidly, because there are so many hours of sunshine each day. There are meadows where tall grass waves, and in some sections, raspberries, currants, huckleberries and cranberries abound. There are no large farms, but in the few gardens along the coast, vegetables of nearly all kinds are grown, and experiments have shown that wheat and oats will do well. The region just north of Cook's Inlet seems to be the best agricultural section.

Look at your map and find the parallels that bound Alaska. Now find the same parallels in Europe. What countries are in about the same latitude as Alaska? See what you can find concerning agriculture in these countries.

Traveling in Alaska is difficult. There are practically no wagon roads, and only a few hundred miles of railroad. The great route of travel is the Yukon River. This is one of the largest rivers in the world. During the summer it is navigable far into the interior, and during the winter dog sledges travel upon the solid ice which covers it. The river is closed by ice from about the first of November to the middle of June. When the ice breaks up, great masses are hurled by the force of the water against the banks, cutting away the earth, which the river bears to the sea.

During the winter the people of Alaska are shut in from the rest of the world. Through this long season the mail is carried to the coast by dog sledge.

The men who drive the sledges, or who travel on foot for any purpose in the winter, wear snowshoes in order to prevent them from sinking into the snow.

The mineral wealth of Alaska is very great. In 1905 it produced $15,630,000 worth of gold. In that year thirty tons of gold were sent out of the country, and but four tons of coal. In 1908 there were $20,000,000 worth of gold produced. There is considerable copper, and in addition some iron, silver, lead, zinc and marble.

Along the coast, as well as in the Yukon, great numbers of salmon are caught and canned. Much of the work is done by Indians. Alaska ships 200,000,000 cans of salmon yearly. In 1908 more than $10,000,000 worth of salmon were produced.

THE FUR SEALS

Lying to the west of Alaska, more than 200 miles from shore, are several small and rocky islands to which the Russians gave the name of Pribilof. These islands are the summer home of fur seals. They live in large companies known as *rookeries*. Each rookery is governed by a male seal called a *beach master*. All of the seals recognize the authority of these rulers. David Starr Jordan tells about the seals in his book called *Matka*.

The fur is soft and glossy and is highly prized. The males are somewhat darker than the females. As the seals are growing scarcer, the cost of fur garments is increasing. The limbs of the seals are better fitted for swimming than for walking, and so the animals spend much of their time in the water. In swimming, the front legs, which are called *flippers*, are used as oars, while the others are stretched out behind. The chief food of the seals is fish, which they are very skillful in catching.

Seals are very graceful in the water. They twist and turn; they dive and swim beneath the surface; they bark and play and appear to enjoy it immensely. In the autumn the seals start on a long journey southward, for the Pribilof Islands are very cold in winter.

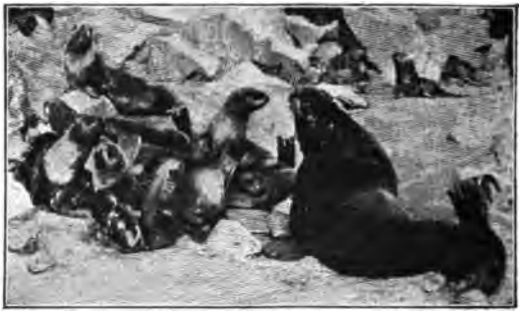


Fig. 82.—Fur Seals, Alaska.

The right to kill the seals on these islands is leased by our government to the highest bidder for a period of ten years. When the time to kill them comes, men surround the animals and drive them back from the rookeries. They move quite slowly and are permitted to rest at frequent intervals. Every few minutes a mother seal or a young one is allowed to escape, for none of these are killed. The seals cannot fight, as many animals can, and so killing them is an easy matter.

The glossy coats are quickly removed from the dead animals, and taken to a house where they are packed in salt to preserve them. Later they are shipped to San Francisco, from which port most of them are reshipped to London. In London the furriers make coats, collars, boas, muffs, caps and gloves which are in demand in many parts of the world.

The wonderful sights which one may see during a summer day in Alaska do not end with sundown. In this far Northland the summer nights are very short. The sun sinks but little below the horizon, and twilight is very long. During this time there is a beautiful glow upon the floating castles and palaces of ice, the mountain peaks and the great white glaciers.

CHAPTER XIX

MEXICO

SOUTH of our country is our sister republic, the United States of Mexico. She is both a smaller and a younger sister, for the area of Mexico is about one fourth that of the United States, while she did not become a republic until nearly 100 years after we gained our independence.

Mexico is a very interesting land. It has great stretches of desert country where the thirsty sands quickly drink the scanty amount of rain that falls upon them, and it has regions of abundant rainfall and tropical jungles. The coastal plains are exceedingly hot, while upon the tops of the most lofty mountains there is perpetual snow. In this country are to be seen the ruins of wonderful temples and palaces. These were built so long ago that there is no record of the people by whom they were made.

In the eastern part of Mexico, facing the gulf of the same name, is a low coastal plain, gradually rising westward to the Sierra Madre Mountains. The trade winds blow landward from the Gulf, warm and moisture-laden. When they strike the cool mountains, much of

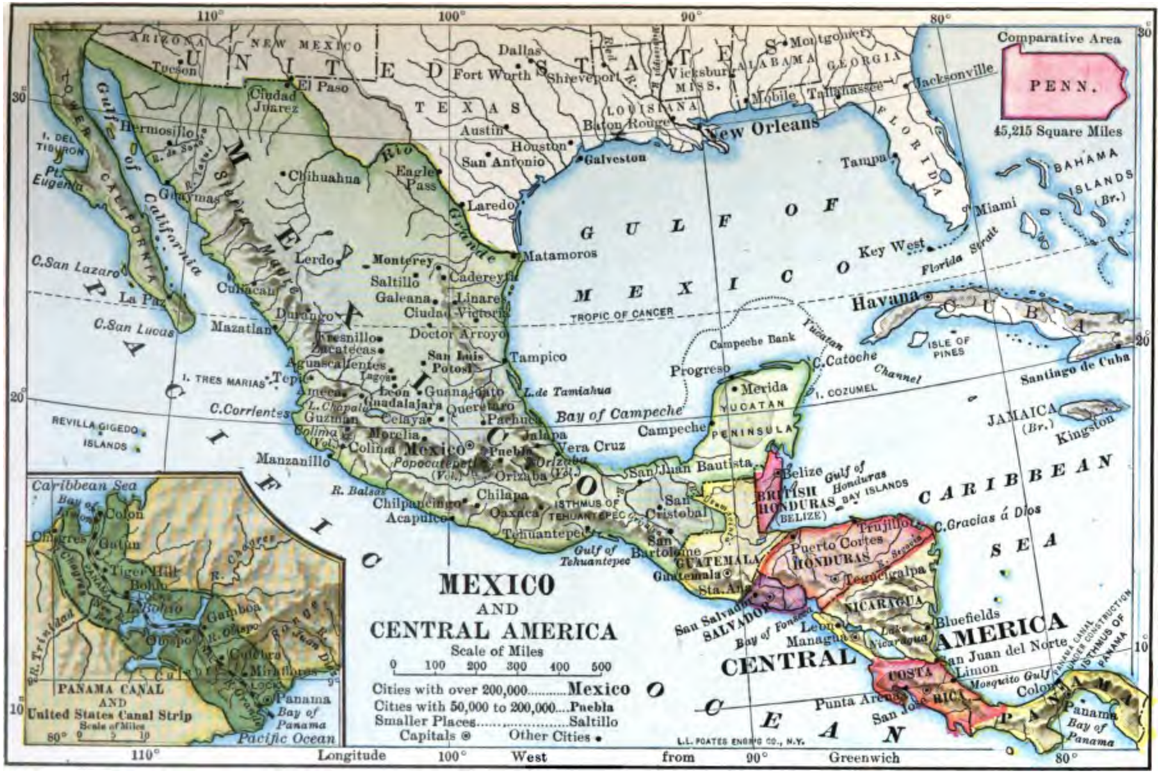

MEXICO
AND
CENTRAL AMERICA
Scale of Miles
0 100 200 300 400 500
Cities with over 200,000..........Mexico
Cities with 50,000 to 200,000....Puebla
Smaller Places.......................Saltillo
Capitals ⊙ Other Cities •
Comparative Area
PENN.
45,215 Square Miles
PANAMA CANAL
AND
United States Canal Strip
Scale of Miles
0 5 10
Longitude West from Greenwich
UNITED STATES
TEXAS
LOUISIANA
MISS.
ALABAMA
GEORGIA
FLORIDA
ARIZONA
NEW MEXICO
MEXICO
GULF OF MEXICO
PACIFIC OCEAN
CARIBBEAN SEA
CENTRAL AMERICA
GUATEMALA
HONDURAS
BRITISH HONDURAS (BELIZE)
SALVADOR
NICARAGUA
COSTA RICA
PANAMA
CUBA
JAMAICA (Br.)
BAHAMA ISLANDS (Br.)
YUCATAN PENINSULA
LOWER CALIFORNIA
Gulf of California
Bay of Campeche
TROPIC OF CANCER
ISTHMUS OF TEHUANTEPEC
Gulf of Tehuantepec
Gulf of Honduras
Florida Strait
Yucatan Channel
Sierra Madre
Rio Grande
ISTHMUS OF PANAMA
PANAMA CANAL UNDER CONSTRUCTION
Havana
New Orleans
Mexico
L.L. POATES ENGR'G CO., N.Y.

Fig. 83.

the moisture is condensed, and the plain is drenched with rain. Because of the heat and the abundant rainfall, vegetation is luxuriant. This plain the Mexicans call the *Tierra Caliente*, meaning the "hot land."

The sea floor along the eastern coast has risen, and as this sea floor is generally quite level, its elevation produces a regular coast line. It is unfortunate that there are few natural harbors on the eastern coast of Mexico, because the richest part of the country is tributary to this coast. It is a disadvantage, also, because the chief commerce of Mexico is with the United States and western Europe.

One of the principal ports on the Gulf coast is Vera Cruz. There is a small island in the bay upon which the Spanish conqueror, Cortez, landed on April 21, 1519. This was one hundred years before the landing of the Pilgrim Fathers. The lighthouse which at night sends its welcome beams out to sea is the ancient church of San Francisco, founded in 1568.

The expressmen in Vera Cruz quite commonly carry the baggage on their backs. These human burden bearers are called *cargadores*. The load is held in place by a strap which passes over the shoulders or across the forehead. As one goes through the streets, he sees ugly birds about as large as turkeys, eating refuse, or perched upon the houses watching for some morsel. These are turkey buzzards, and are protected by law because they help to keep the streets clean.

North of Vera Cruz is Tampico, situated at the mouth of the Panuco River. Its harbor, like that at Vera Cruz, has been improved at great expense, and ships can now anchor in safety. Several hundred ocean steamers call at this port every month, and it is rapidly growing in importance. The city is built on a bluff which rises some fifty feet above the water.

On the lowlands are fields of rice, cotton, sugar cane and tobacco. There are banana and rubber plantations, coconut trees, the cacao trees from which cocoa and chocolate are obtained, and groves of oranges and lemons.

As there is no winter, vegetation grows all the year, and it is easy to obtain a living. Because of this, people are not very industrious. Many of the inhabitants are Indians who live in huts having thatched roofs and no furniture.

Where Mexico is the narrowest, at the Isthmus of Tehuantepec, a railroad has been built from the Atlantic to the Pacific. This was opened in 1905. Much time is saved by transferring the cargoes of ships from Puerto Mexico on the Gulf coast to Salina Cruz on the Pacific, instead of sending them around Cape Horn.

In the southern part of Mexico is the peninsula of Yucatan. It receives but a moderate amount of rainfall, as there are no mountains to condense the moisture. The most important product of the peninsula is henequin. In fact, about eighty per cent of the total income of Yucatan is derived from this fiber, which is the product of a variety of the agava plant.

This fiber is often called sisal hemp, because it was exported from the town of Sisal. The plant needs little care beyond weeding, and in about five years after planting it is ready to cut. The leaves produce the fiber, and these are cut by means of long knives. The plants continue to produce for fifteen or twenty years.

The exported henequin is used in the manufacture of sacking, cordage and binder's twine. In Mexico it is used in making mats and hammocks.

Let us take a train at Vera Cruz and travel across the lowlands and over the mountains to the great plateau that lies beyond. Our train climbs steadily from the swamps and jungles of the lowlands to the hillsides, upon which are coffee plantations where men wearing white suits and curious steeple-shaped hats called *sombreros* pick the bright coffee berries.

It grows cooler as our train slowly mounts upward. At an altitude of 4000 feet the town of Orizaba is reached. Twenty-five miles north of the city the volcano of Orizaba lifts its snow-crowned head 18,000 feet above the level of the sea. The valley in which Orizaba is situated is very fertile, for it has plenty of water. In fact, a stream runs through the town. The name which the Indians gave to the place meant "joy in the waters," but the Spaniards changed it to Orizaba.

As our train winds along the mountain sides, beautiful views are obtained. In nine miles after leaving Orizaba, we rise nearly half a mile. We reach an altitude of 10,000 feet before crossing the Sierra Madre Mountains. As we descend the western slope, we find ourselves on a great plateau. The forests have disappeared, because the mountains cause most of the rain to fall upon the eastern slope.

Here are great fields of grayish green plants with thick leaves. They are another variety of the agava plants which produce the henequin fiber in Yucatan. These plants are not grown for fiber, however. What use do you think the people make of them?

There is an Indian going from plant to plant. Upon his back he carries a sack made of pigskin. He also carries a gourd, and a tube called a *siphon*. Yesterday he cut into the body of the plants, making a little basin in each. In each basin there are now about two quarts of sap. This the Indian draws out by means of his siphon, letting it run into the gourd. It is then emptied into the pigskin sack.

For about a month the workmen collect the sap two or three times daily, after which the plants wither and die. The sap thus collected is carried to the ranch house and placed in barrels, where it quickly ferments. This liquor, known as *pulque* (pool′kā), has been used by the Indians for hundreds of years.

We pass many pulque plantations as we travel over the plateau. On some of them hundreds of Indians known as *peons* are employed. In places the plateau is so dry that nothing is raised. At last we reach the suburbs of a town, and almost in the twinkling of an eye we have passed from the uninviting sandy wastes to a great city having a population as great as that of Detroit. It is the Mexican capital, situated on the site of an ancient Aztec city.

THE CAPITAL AND MEXICAN HIGHLANDS

On leaving our train at the city of Mexico, we take a cab for our hotel. Some of the cabs carry small blue flags, some red flags and others yellow flags. Instead of a flag, there may be a blue, red or yellow band on the door. Blue indicates first; red, second; and yellow, third class cabs. We notice that the streets are broad, paved, and have electric lights and electric cars. The buildings are quite different from those in one of our cities, however. They are commonly built of stone or stucco, and are generally cream-white in color. There are balconies around the first story. We are surprised to see so few chimneys, but we learn the reason for this later.

Our hotel is built about a large open space known as the *patio*. In this there is a fountain, and about it banana, palm and orange trees, and many kinds of flowers. The rooms open on to this patio, which makes them very pleasant. There are no stoves in our rooms, and we learn that stoves are not in common use. Much of the heating and cooking is done by means of charcoal, so you see why there are few chimneys.

The city of Mexico is built upon a plateau surrounded by lofty mountains. The city itself is about 1000 feet higher than the summit of Mt. Washington. In the center of the city is an open space called the Plaza Mayor. Here is the great cathedral, commenced in 1573 and finished in 1730. It cost nearly $3,000,000. It was in this city that the first printing press in the New World was set up. This was in 1535, and the house in which it was used is yet standing.

Here, centuries ago, on some islands in a lake, the Aztec people built their capital and called it Tenochtitlan. They built houses of sun-dried brick and of stone, and they erected a great temple. Canals, on which both produce and people were conveyed, extended through the city. As you see, it was a little like Venice.

When Montezuma, the Indian ruler, heard of the landing of Cortez on the eastern coast, he was worried. The Indians believed that the Spaniards were more than mere men. They did not wish them to enter their capital, and yet they did not care to offend them. Ac-

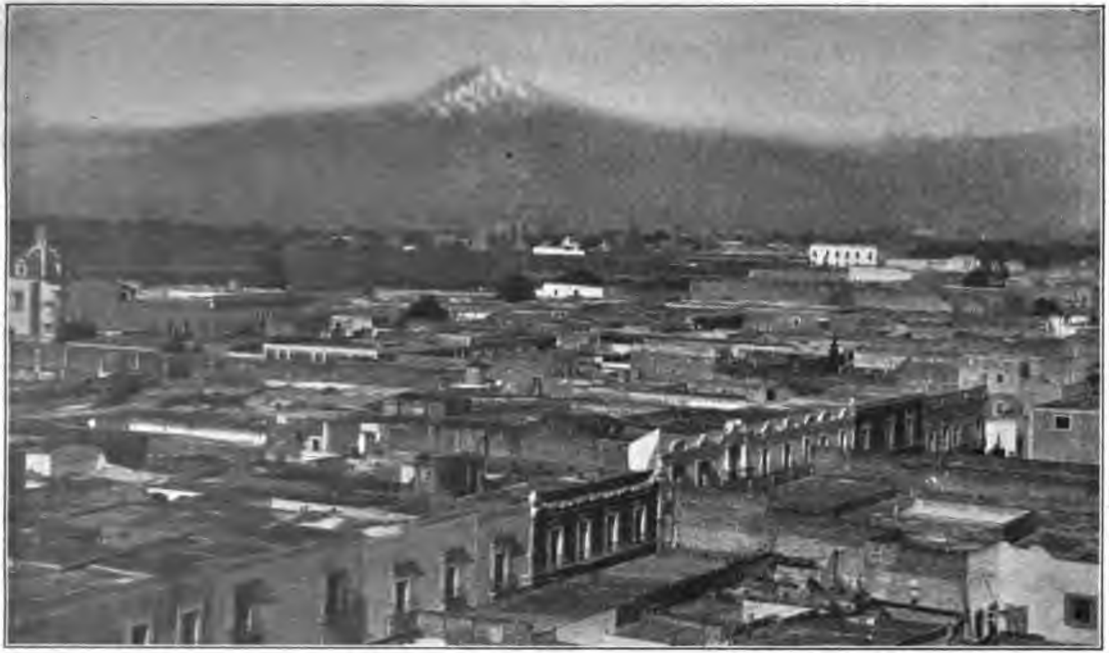


FIG. 84.—A View of a Part of Mexico City, with the Snow-capped Cone of the Volcano Popocatepetl rising in the Distance.

cordingly, messengers were sent to the strangers, bearing costly presents of gold, silver and precious stones, and also the request that they leave the country.

When the Spaniards saw these presents, they were more anxious than before to enter the capital. They therefore pushed on, and after a time conquered the people, took from them their treasures, and destroyed their city.

Upon the ruins of this Indian capital the city of Mexico was built. In 1901, almost four hundred years after the destruction of the ancient city, workmen, in excavating, came upon a flight of stone steps. Under the direction of a son of President Diaz, the men carefully uncovered the steps one by one. At a depth of thirteen feet they found what had once been a room in some great building. In this was an immense jaguar carved in stone, and weighing about four tons. There was also a large stone serpent. You see that history is sometimes written in stone, as well as in books.

Formerly there was no escape for the waters that collected in the valley of Mexico nor for the sewage of the city. It was, therefore, an unhealthful place. A canal thirty miles long has been dug and a tunnel six miles in length cut through a mountain. This canal, which drains the city, was completed on March 17, 1900.

The capital city is within nineteen degrees of the equator, and is therefore in the torrid zone. On account of its great altitude, the climate is cool. This shows you that there are vertical as well as horizontal zones. Even in the summer the nights are quite cold, and warm wraps are needed. The average annual temperature at the city of Mexico is 61° F. No snow falls there, although the great snow-crowned head of Popocatepetl, 17,782 feet in height, is plainly visible. As summer is the rainy season on the plateau, winter is the best time to visit the capital.

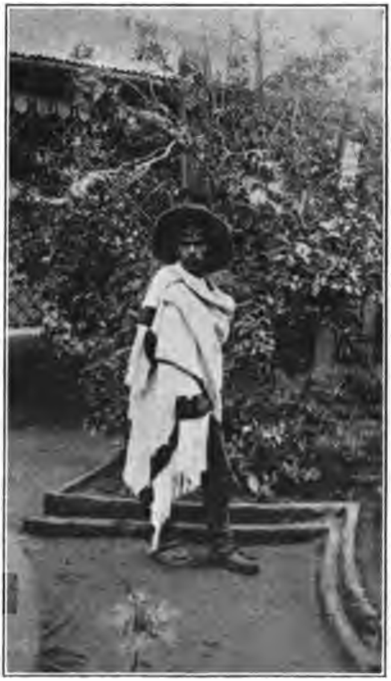


Fig. 85. — A Mexican Laborer, showing Blanket.

In Mexico City, as in other places in Mexico, the men of the lower class wear blankets called *serapes* (sē-rä′pās) instead of overcoats. These are generally red in color, and have black stripes at the ends. Often there is an opening in the middle of the blanket through which the wearer puts his head. On the head is worn the sombrero.

The women wear shawls called *rebosas.* The rebosa is draped around the head, and is generally blue. The shawl worn by the unmarried women and girls is called a *mantilla.* In the cities the people of the upper classes dress as do the Europeans.

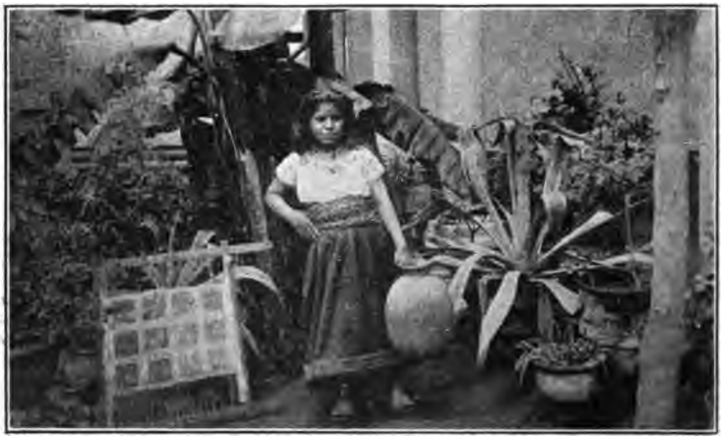


Fig. 86. — A Mexican Water Girl.

The food of the laboring people is very simple. It consists chiefly of *frijoles* (frē-hōles′) and *tortillas.* Frijoles are beans fried in fat, while tortillas are corncakes. Corn is the staple article of food on the plateau. In making the tortillas, the corn is first soaked in lime-water. It is then placed on a flat stone called a *matate,* and ground with another stone called a *pestle.* The dough is shaped into round cakes and baked over a charcoal fire.

A fashionable drive known as the Paseo de la Reforma leads from the capital to the Castle of Chapultepec on the hill of the same name. The drive, which is two and one half miles in length, is lined with trees, and is much frequented, especially by the wealthy.

About seventy-five miles south of the capital is the city of Cuernavaca. It is situated in a valley about 3000 feet lower than the city of Mexico, and it therefore has a milder climate. Oranges, bananas, coffee and rice are raised in the valley. Here are seen corncribs presenting the appearance of immense urns. They project at the base, and in a depressed portion water is kept to protect the corn from the attack of ants.

Puebla is the second city in Mexico in population, and is said to be the cleanest city in the country. It has plenty of water, which is shown by the fact that it runs in the gutters. Still farther south is the city of Oaxaca (wah-hack′ah), where President Diaz was born, and a little beyond is Mitla, where there are wonderful ruins. In this part of the country some of the farmers still use wooden plows, as they did hundreds of years ago. Threshing is sometimes done by driving horses or mules back and forth over the grain after it has been cut.

Only a few miles from the city of Mexico is one of the most lofty mountains in North America, being more than 17,000 feet in altitude. It is conical, and upon its slopes forests extend to about 13,000 feet above the sea. In earlier times vast quantities of molten rock poured from this mountain to the plain below, and heavy clouds of smoke hung over its summit, for it is a volcano. The Aztecs named this mountain Pōpo-catepetl, which means "smoking mountain."

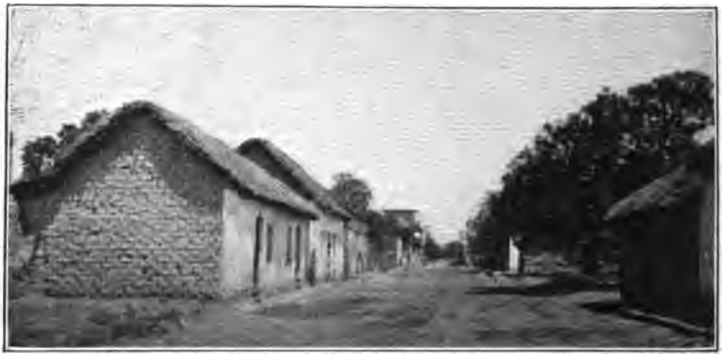


Fig. 87. — A Mexican Village.

To-day the volcano is slumbering, and no one knows whether or not it will some day awaken. Although the trip is a tedious one, many people have gone to the summit of the mountain. Mounted upon the back of a slow but faithful burro, one can ride the greater part of the distance. As we ascend, the valley spreads out before us like a picture. We are obliged to stop frequently, for it is difficult to breathe at high altitudes. At last the top is reached, and we look down into a great basin called a *crater*. This is hundreds of feet in depth, and the walls are almost perpendicular. Jets of steam issue from the walls, and the air is filled with sulphur fumes. In fact, until very recently sulphur was obtained from the crater.

Ten miles north of Popocatepetl is Ixtaccihuatl, which means the "white woman." The form of the mountain resembles that of a woman lying in the snow, and so it was given this name. On the northwest slope of the mountain there is a glacier. Although there are several volcanoes in this part of Mexico, it is not known that Ixtaccihuatl is one.

A little north of Lake Chapala, the largest lake in Mexico, is Guadalajara. This is an old city, having been founded in 1540. It is a beautiful and a clean city, and is quite important as a manufacturing center. In most manufacturing cities one sees great chimneys sending out clouds of black smoke. This is not true in Guadalajara, for the work is done by electrical power. The same power runs the street cars and furnishes the light. It comes from the falls of the Lerma River, a few miles away. The city of Guadalajara is about 5000 feet above the sea, but this part of the valley of the Lerma is some 3000 feet deep. Here tropical fruits are raised. Why?

Mexico produces great quantities of gold, silver, copper, iron and petroleum. Because of this it is sometimes called the "treasure house of the world." More silver is produced in Mexico than in any other country, amounting in 1908 to $37,515,000. Much of the silver comes from the region about Potosi and Guanajuato, which is called the "Silver City." Some of the silver mines were worked by the Aztecs before the landing of the Spaniards.

Monterey, near the northeast part of the republic, is sometimes called the "Chicago of Mexico." It is located near iron and coal deposits, and is therefore an important manufacturing center. It has smelters, foundries, steel works, woolen and cotton mills, candy factories, brickyards and breweries.

Much of the northern part of the great plateau is dry, and therefore is not thickly settled. As we travel toward the United States, we pass the town of Catorce. Looking out of the window of our car, we see a stone monument upon which is written "Tropic of Cancer," and the next instant we know that we are out of the torrid zone. We cross the Rio Grande River at El Paso, and are once more in the United States.

CHAPTER XX

THE CENTRAL AMERICAN REPUBLICS

Central America is made up of a number of republics, the combined area of which is but a little greater than that of the state of California. The land along the coast is low, and the climate is hot, moist and unhealthful. In the interior it is mountainous, and there the climate is delightful. There are many volcanoes, and destructive earthquakes occur from time to time.

Except where the trees have been cleared away, forests abound. These furnish dyewoods and woods used in the making of furniture. When more roads have been built into the interior, these woods will be more largely exported. In the forests are countless rubber trees, and many have been planted, for the demand for rubber is constantly increasing. Coffee, bananas, cocoa, sugar, rice, corn and tobacco are common crops.

The majority of the inhabitants are Indians, some of whom are only partly civilized. They are not very industrious, and usually produce only enough to meet their own needs. Their homes are huts, with practically no furniture or conveniences. The floors are of mud. Home-made hammocks are common, and are much in use.

Nicaragua is about as large as New York State, but has a small population. Her chief exports are coffee of excellent quality, bananas and cocoa. The bananas are grown on the hot lowlands in the vicinity of Bluefields, and are shipped to New Orleans in large quantities.

In the interior of Nicaragua is a large lake of the same name, while the smaller Lake Managua is not far from it. Lake Nicaragua is deep and very beautiful. In all directions rise mountains, and in the lake is a volcanic island called Ometepe. On the plain which borders the lake many cattle are pastured. The San Juan River flows from Lake Nicaragua to the Caribbean Sea. Steamboats run from San Juan del Norte, at the mouth of the river, to the city of Granada, at the west end of the lake.

In coasting along the shore of Central America in 1502, Columbus was compelled to seek shelter from a storm. As his vessels rounded a cape, they found a bay where they were protected. Columbus was so thankful that he named the cape Gracias á Dios (Thanks to God). The map will show you the location of this cape.

Honduras is rich in minerals. She also has vast forests, and because of this, as well as because most of the people are Indians, there is no farming on a large scale.

The natives generally go barefooted. They collect rubber, sarsaparilla and vanilla in the forests. Only paths lead through the dark forests, and there are few roads anywhere.

Salvador is the one republic that has no Atlantic coast line. It is chiefly mountainous, and in the northern part peaks reach the height of 7000 to 8000 feet.

Costa Rica means "rich coast," and it well deserves the name. It has a fertile soil, forests and, in the interior, a fine climate. Its crops are much like those of the other republics. The people of this little country are nearly all whites. They are industrious, intelligent and progressive. Most of the men own property. The homes of the well-to-do contain modern conveniences.

San José, the capital, has substantial business houses and government buildings. The streets are paved and have electric lights. Every Saturday is market day in the city. In the market place are displayed fruits, vegetables, poultry, pottery, fabrics, hats and many other things.

Let us take a trip to the banana country in Costa Rica. There are more than 100 square miles devoted to this industry, and work is chiefly done by negroes from the West Indies.

Yes, these are banana trees all about you. See how long and broad the leaves are and how gracefully they droop! Some of them are ten or fifteen feet long; almost as long as the trees are tall. The trees, you see, are simply stalks from which the leaves unroll. Here you can see some just starting out. They are rolls of

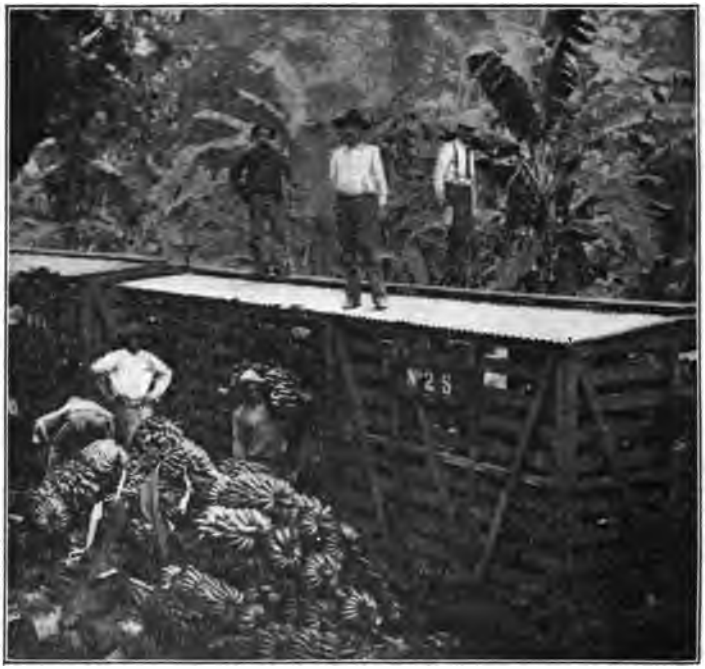


FIG. 88.—Loading a Train with Bananas on a Banana Plantation in Costa Rica.

bright green, pointing upward, each starting from the center of the stalk. The wind sometimes whips the leaves into ribbons, for they are very tender.

The stalks growing from the base of the main stem are called "bits." You remember that there are no seeds in bananas. It is these "bits" that are planted when a farmer wants to start a plantation. They are set out when two or three feet high, and within a year they bear fruit.

It is but four years since the trees in this plantation were single stalks, standing about fifteen feet apart. Now there are several stalks grouped about each parent plant, and the beautiful leaves, touching overhead, form shaded aisles of green.

Of course, a large number of bits are not allowed to grow together. Keeping these cut down is called "cleaning the plantation."

Now let us examine the fruit on this tree beside us. You see that the great cluster or bunch is made up of smaller bunches. These are called "hands," and each banana is spoken of as a "finger."

It is a surprise to see the workmen gathering *green* bananas, but they are not allowed to ripen on the trees. The ripening takes place in the storehouses in the cities to which they are shipped. As the fruit bruises very easily, much of it is lost in being taken from the plantation to the ship.

When the fruit reaches the vessel, it is carefully inspected; and if not in just the right condition, it is refused. The bunches which are accepted are taken into the hold of the ship and packed closely together. The planter receives for these from ten to thirty-five cents a bunch. Just think of buying eight or nine dozen bananas for ten cents!

Most of the bananas shipped from Costa Rica land at New Orleans. They are then transported by train to different parts of the United States. The Pacific coast states receive many bananas from this small country.

CHAPTER XXI

THE GREAT AMERICAN DITCH

THE ocean covers about three fourths of the total surface of the earth. The land is not in one compact body, and in many cases countries that desire to trade with each other are separated by thousands of miles of water. Because of this, much of the commerce of the world is carried on across oceans. Once all ships were moved by oars, or driven by the wind, but about one hundred years ago the steamboat was invented. There are to-day many sailing vessels in use, but steamships can go more rapidly, and are not hindered by calms.

Only the broad Atlantic rolls between our eastern coast and Europe, and ships going from our Atlantic ports to those of Europe follow very direct routes. In order to make a voyage from New York to San Francisco, a vessel must go around the south end of South America, thus adding many thousand miles to a direct course. Look at a map of the world, and you will see the reason for this. North and South America are connected by a narrow strip of land — the Isthmus of Panama. This isthmus has always been a great barrier to ocean commerce between the Atlantic and the Pacific.

The map shows you that there is a similar isthmus connecting Asia and Africa. This barrier was removed, and in 1879 the Suez Canal was opened to the world. This canal was dug to the level of the ocean, and ships of all sizes can now pass readily through it. Often there is insufficient wind for sailing vessels, and so they must be towed through by tugs. Trace the route which ships followed before the opening of the canal, in going from Europe to India, Australia or China. You see what a great saving of time has been made possible by the construction of the Suez Canal.

As the New World increased in population, and as its resources were more fully developed, the Isthmus of Panama became a greater and greater barrier to commerce. For a long time people have wanted to cut a canal across it. In its narrowest part the barrier is only about fifty miles wide, and the mountains which extend from Alaska to Cape Horn here sink to hills.

There are several routes across Central America which might be followed by a canal. Along one of these routes lies Lake Nicaragua. After much investigation the French decided, in the same year in which the Suez Canal was opened, to build a waterway from Colon to Panama. After spending millions of dollars, the work was abandoned and transferred to the United States. The canal is now being constructed entirely by our government. We have secured from the Republic of

Panama a strip of land on either side of the canal five miles in width. Because of this the Panama Canal might be called the *Great American Ditch.*

Narrow as is the isthmus, the opening of the canal is a great undertaking. To cut a ditch nearly fifty miles long, and wide and deep enough for the use of large ships, requires a great deal of work. Much of the material to be removed is rock, and of course this cannot be done by hand. The climate is hot, for Panama is in the torrid zone, and the rainfall is heavy. Because of these conditions, forests and jungles clothe the country. For years there was great loss of life among the workmen on account of fevers. When our government undertook the work, it spent large sums of money in improving conditions, and now it is quite safe to live there if reasonable care is used.

If you were to visit the canal zone, as our strip of land is called, you would find it a very busy place. About fifty years ago the Panama Railroad was built between Colon and Panama. This road is parallel to the canal, and but a few miles from it. Great quantities of goods and many passengers, unloaded from ships at the cities mentioned, are carried across the isthmus by rail. The road is also used to transport the machinery, tools, lumber and other things necessary in the building of the canal. In fact, it would be very difficult to construct the canal without the road.

Trees and brush must be removed, and soil scraped off. Where solid rock exists, it is blasted by means of dynamite or other explosives. Along the canal there are camps and villages, for the number of men employed is very large, amounting in March, 1909, to more than 30,000.

The Panama Canal is not being dug to the level of the sea. That would require too much money and too long a time. The highest part of the isthmus crossed by the canal is about 300 feet above sea level, therefore each ship using the canal will have to be lifted this distance and lowered the same distance.

The canal is made in sections, each one of which is level. At the ends of the sections there are *locks*. A lock is a very small section of a canal which may be inclosed or *locked* by means of iron gates. Suppose a ship to be going through the canal. When it reaches the end of the first division of the canal, the great gate on the downstream side of the vessel is closed by machinery. This gate rises many feet from the bottom of the canal. The gate on the upstream side is now opened, and water pours into the space between the two gates. The boat rises with the water, and when it is as high as the level of the canal in the next section, it continues its journey. At each lock the boat is lifted a certain number of feet until the summit has been reached. In going downhill, the

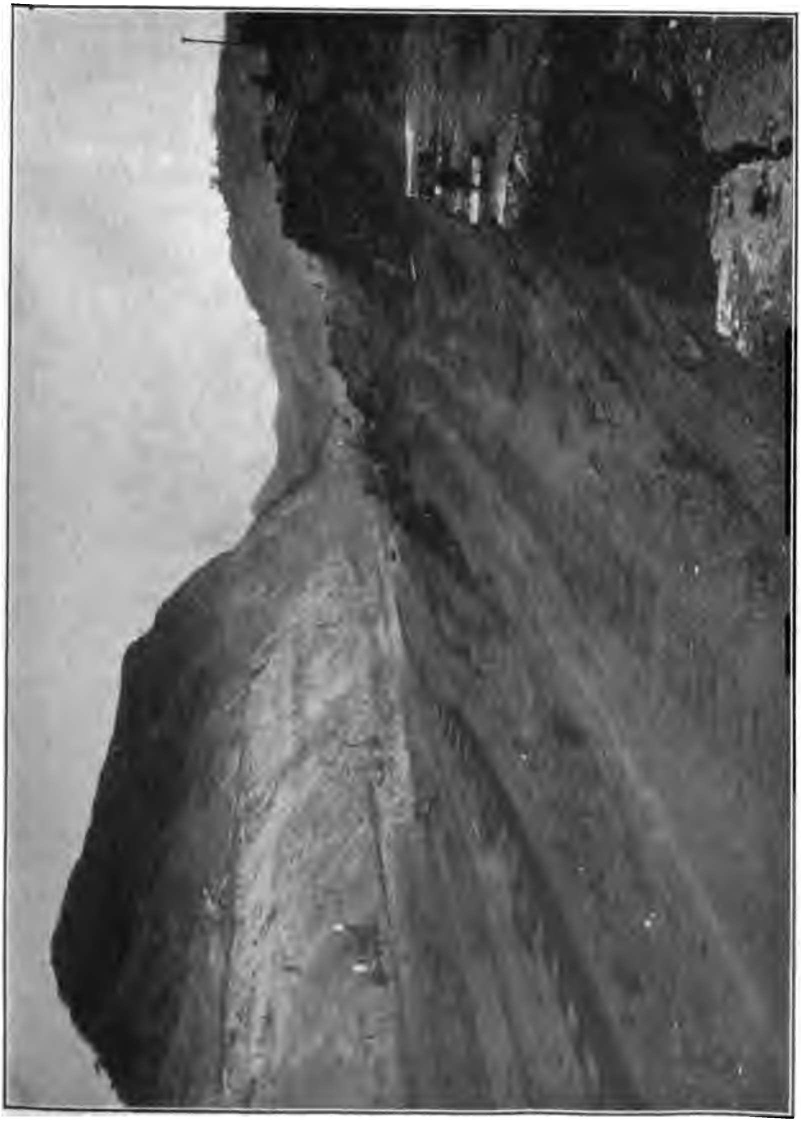


FIG. 89. — Excavating the Panama Canal.

process is reversed. The locks are large enough to hold several ships at a time.

Colon, at the Atlantic end of the Panama Canal, was named for Columbus, who, in 1502, discovered the bay upon which it is situated. When Spain owned much of the New World, Panama, which is near the western end of the canal, was one of her rich cities. There were cathedrals, mansions, towers and warehouses. The little town at the end of the canal has been known as La Boca, but President Taft caused its name to be changed to Balboa, in honor of the man who discovered the Pacific Ocean. Balboa is a short distance from Panama.

Although the Panama Canal is being built by our country, it will be used by the ships of all nations. A certain fee, called a *toll,* will be paid for each vessel passing through. This toll will depend upon the size of the vessel.

The canal will benefit the Central American countries, Mexico, North and South America, as well as other parts of the world. A ship sailing from San Francisco to New York must now pass around Cape Horn. When the canal is opened, this voyage will be shortened 10,000 miles. It will also shorten the distance between our western ports and those of western Europe.

Across the Pacific Ocean from our Western states are the most populous countries of the world. Here live hundreds of millions of people who produce things desired by us, such as tea, coffee, sugar, spices and silk. These people need articles that we have for sale, such as machinery of many kinds, farming implements, oil, flour and other kinds of manufactured goods. The opening of the canal will greatly increase our commerce with the Orient. We must not forget our possessions in the Pacific — the Hawaiian and the Philippine Islands — which can be much more easily protected when this canal is opened.

CHAPTER XXII

THE WEST INDIES

It is but one hundred miles from Key West, Florida, to the northern shore of Cuba, the "Pearl of the Antilles." This island, which is the largest of the West Indies, guards the entrance to the Gulf of Mexico. It is about as far from the west to the east end of Cuba as it is from Chicago to New York, while its area is almost exactly the same as that of Ohio.

Cuba is very different from Ohio, however. Being in the torrid zone, its climate is warm. There is no chance to skate, sleighride or snowball in Cuba. Because of the nature of the climate, oranges, lemons, bananas, pineapples, cocoanuts and other tropical products are common. In such a climate people spend much time out of doors.

The prevailing winds are the northeast trades. Blowing over the warm waters of the surrounding sea, they bring much rain to the island. This is especially true between May and October, which is the rainy season. In some places as much as seventy inches of rain fall in a year.

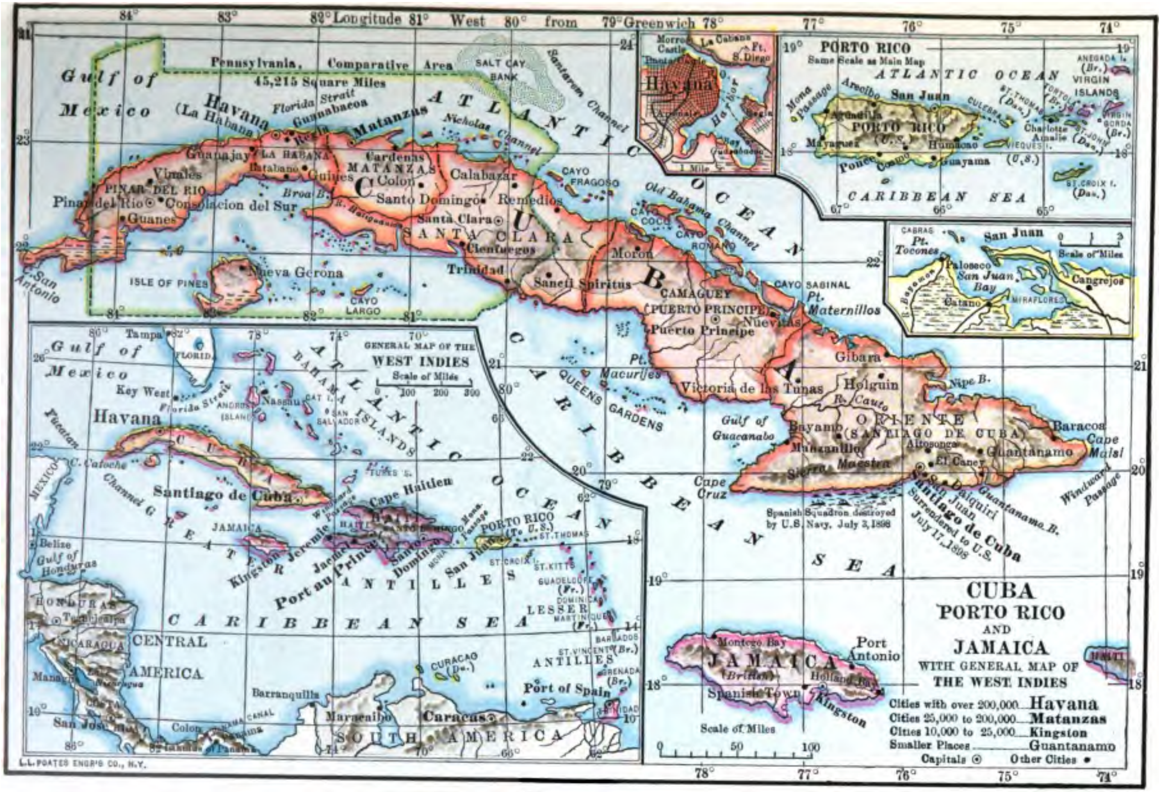

CUBA
PORTO RICO
AND
JAMAICA
WITH GENERAL MAP OF
THE WEST INDIES
Cities with over 200,000 Havana
Cities 25,000 to 200,000 Matanzas
Cities 10,000 to 25,000 Kingston
Smaller Places Guantanamo
Capitals
Other Cities
Longitude West from Greenwich
Gulf of Mexico
ATLANTIC OCEAN
CARIBBEAN SEA
Pennsylvania, Comparative Area 45,215 Square Miles
Havana (La Habana)
Matanzas
Santa Clara
Cienfuegos
Trinidad
Sancti Spiritus
Puerto Principe
Victoria de las Tunas
Holguin
Bayamo
Manzanillo
Santiago de Cuba
Guantanamo
Baracoa
Isle of Pines
Nueva Gerona
Spanish Squadron destroyed by U.S. Navy, July 3, 1898
Santiago de Cuba Surrendered to U.S. July 17, 1898
PORTO RICO Same Scale as Main Map
San Juan
JAMAICA (British)
Kingston
Port Antonio
Spanish Town
Montego Bay
Scale of Miles
GENERAL MAP OF THE WEST INDIES
L.L. POATES ENGR'G CO., N.Y.

FIG. 90.

On the north shore, nearly south of Key West, is the city of Havana, the capital. It is situated on a beautiful bay, the entrance to which is narrow. In this harbor Columbus repaired or overhauled his ships. *Carenas* is the Spanish word for "overhauled" and *puerto* means "port," and so he named the bay "Puerto de Carenas."

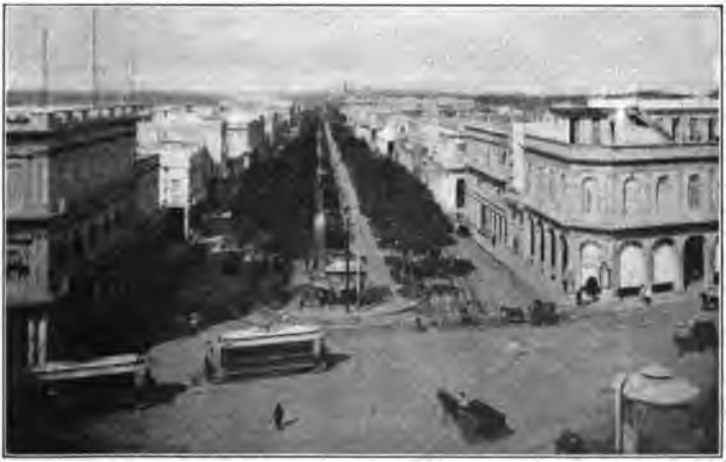


FIG. 91. — The Prado, Havana.

As we sail through the narrow opening leading into the harbor, we see on the left the old *morro*, or fort, which the Spanish built to guard the city. The harbor is large enough to hold 1000 ships, and it has deep water.

Havana extends from the sea to a low, flat-topped hill on which is a large square or plaza. A boulevard called the Prado leads from the plaza to the bay. As we approach the city we catch glimpses of yellow houses with red-tile roofs. The common building material is a stone comprised partly of sea shells.

Coasting along the north shore, we reach the city of Matanzas, about sixty miles east of the capital, founded in 1693. It ships rum, molasses and sugar to the United States. Matanzas is said to be the healthiest city on the island.

At the extreme east end of the island is the city of Santiago de Cuba. It is situated six miles from the sea on a pocket harbor, the entrance to which is only about two hundred feet wide. The city is very old, having been founded in 1514. As in Havana, many of the houses have roofs of red tile.

On the south coast is Cienfuegos, also on a landlocked harbor. It exports much sugar.

Diego Columbus, the son of the great admiral, founded Baracoa in 1514. The ruins of the house of the founder are still pointed out by the natives. The town is important because it ships great quantities of bananas.

Let us travel through the island. Mountains extend from west to east, increasing in altitude toward the east, where some of the peaks are 1000 feet higher than the most lofty mountain in the Appalachian system. The rivers are short, the longest, the Rio Canto, being only about one hundred and fifty miles in length. Small ships can navigate this river for about fifty miles from its mouth.

We see many kinds of trees and other plants as we explore the island. There are more than thirty varieties of palms, of which the royal palm is the most celebrated. In the eastern part of Cuba there are great forests. The Spanish cedar, a variety of mahogany, is one of the valuable trees. In the forests are many birds, some having brilliant plumage. Few of them sing, however.

On the plantations, sugar is a very common crop. In fact, it is the most valuable crop. The best sugar district is in the central part of Cuba, in the province of Santa Clara. The sugar cane is cut, loaded on to carts or small cars, and taken to the mill, where it is crushed between rollers. From the juice which is boiled down, sugar is made. The United States does not produce enough sugar to supply the demand, and as Cuba is a near neighbor, we buy large quantities from her.

Tobacco is the second crop in importance. A rich, loose soil is required by this plant, and this is found in the western part of the island. In order to protect the plants, cheesecloth is sometimes used as a cover. Cuban tobacco and cigars are sold in many parts of the world.

Fifty years ago much coffee was grown in Cuba, a great deal of which was sold in the distant city of Vienna, which was then the chief coffee market in the world. Later the planters gave their attention to other crops, and little coffee was produced. The amount is now increasing. Banana plantations are common, and the fruit is exported to New Orleans, Philadelphia, New York and Boston.

Everywhere we see in the fields and on the roads the slow, patient oxen doing the work which is done by horses in our country. Oxen are used in plowing the fields and in hauling the crops to market.

In the vicinity of Baracoa are many cocoanut groves. The trees rise, tall and slender, to a considerable height, before the first branch is reached. The leaves are long, graceful and feathery. To gather the nuts, which are incased in a hard shell, men climb the trees and cut them off. The nuts which fall from the trees without gathering are called "drip" nuts, and are sold for about one cent each.

Farming is the leading occupation in Cuba, nearly one half of the people being engaged in some form of agriculture. The homes of the poor country people are generally very simple. Many of them have thatched roofs and contain very little furniture. Often a parrot is seen perched upon an iron hoop which is fastened to a rafter.

As in Florida and southern California, oranges, lemons and grapefruit are grown. Lemons are exported in considerable quantities. Pineapples, plantains, cocoa and sweet potatoes are other products.

Cuba was discovered by Columbus on Sunday, October 28, 1492. For four hundred years it was under the rule of Spain. After the close of the Spanish-American War, the United States governed the island for a little more than three years. During that time our country did very much to improve conditions in Cuba. On May 20, 1902, the people of Cuba were given possession of their island.

JAMAICA

Just south of Cuba lies the island of Jamaica. Viewed from the sea, it appears to be a tangled mass of mountains, about whose most lofty peaks clouds hang almost constantly. This is because the moisture in the warm winds is condensed by the cool mountain tops.

As in Cuba, there is no winter, and the trades bring an abundance of rainfall, amounting, in some places, to one hundred inches per year. Some of the water which sinks into the rocks finds its way back to the surface in the form of hot springs. This may account for the original name of the island, "Xaymaca," "Island of Fountains."

Forests cover the higher mountain slopes, while lower down coffee plantations are found. Orange trees grow wild, and there was practically no attempt to cultivate them until 1895, when the Florida groves were so severely injured by frost. Bananas, sugar and tobacco are important crops. Allspice is obtained from the pimento tree, and ginger from the roots of a plant which grows to a height of three or four feet.

Kingston, on the south coast, is a hot, unpleasant city, but has a good harbor. It has street railways. The houses are generally built of yellow brick. Port Antonio is a fruit-shipping center. Ships leave this port for Baltimore, Philadelphia, New York and Boston two or three times each week.

In Jamaica excellent roads are found, even those in the country being macadamized. One can drive entirely around the island, being all of the time within sight of the sea. These good roads are the result of English rule, which has existed since 1865, when the island was taken from the Spanish. There are good schools, also, and law and order prevail.

The population of Jamaica is chiefly colored, there being forty negroes to one white person. They are light-hearted, and enjoy music and dancing. The women do most of the hard work. In speaking of the women, Mr. Robert Hill says: "They do the household work, cultivate the fields, carry the hods of brick and mortar, coal the ships, load the bananas, break stone for the highways, and carry the products to market upon their heads, arrayed in a single garment of calico, and without shoes or hats."

HAITI

Separated from Cuba by a narrow strait called the Windward Passage, is an island which consists of two republics — Haiti and Santo Domingo. On the sixth day of December, 1492, Columbus entered a harbor at the west end of the island. As this was St. Nicholas Day, he called the harbor Port St. Nicholas.

At the time of its discovery there were many Indians on the island, but there are none left. Columbus called the island Hispaniola, meaning "Little Spain." On Christmas Day the *Santa Maria,* one of the ships of the discoverer, was wrecked. From the lumber the white men, with the help of the Indians, built a fort which was named Fortress Navidad. When Columbus sailed away, he left thirty of his men in this fort, but all were killed by the natives.

Coffee is the chief crop of Haiti, and most of it is shipped to France and Belgium. Bananas, plantains, oranges, lemons, coconuts, cocoa and other tropical products are grown. The mahogany and lignum vitæ are valuable forest trees, and there is a tree that yields a variety of cotton. Because of the warm climate and the abundance of fruit, it is very easy to make a living, and therefore the people are not hard workers.

Traveling is rather difficult in Haiti, for the roads are poor. Port au Prince, on the west shore and due south of New York, is the capital. While it is a city of 60,000 inhabitants, it has few fine buildings. It is not uncommon to see garbage thrown from the front doors of the houses into the streets. In 1770 the city was badly damaged by an earthquake.

Cape Haitien, a city on the north coast, has a good harbor with a narrow entrance. The city is situated at the foot of a hill, with mountains on three sides of it.

SANTO DOMINGO

Like Haiti, Santo Domingo is mountainous, the most lofty peaks reaching an altitude of more than 10,000 feet. There are three chief mountain ridges, while between these, and along the sea, are fertile valleys. Along the coast, in the clear, warm waters, the coral polyps build reefs of beautiful white and pink coral.

In writing to the king and queen of Spain concerning this country, Columbus said: "I swear to your Majesties, there is not in the world a better nation nor a better land; they love their neighbors as themselves, and their discourse is ever sweet and gentle, accompanied with a smile."

Santo Domingo City is very interesting, for it was built within a wall, as were all cities three or four hundred years ago. The streets are straight and narrow, with houses of masonry on either side. These have massive doors and large windows. The old cathedral, commenced in 1512, is still standing, while the castle in which Columbus lived for a time is pointed out to the visitor.

Although Columbus died in Valladolid, Spain, his body was brought to Santo Domingo for burial. The people of the city claim that his ashes still repose in a leaden casket in the cathedral, although the people of Havana say that they were removed to that city.

Haiti and Santo Domingo have been at different times ruled by both Spain and France, but for about fifty years they have been independent. It is interesting to know that on this island slavery was first instituted by the Europeans in the New World, and on this same island slavery was first abolished. Not only is there no slavery, but both Haiti and Santo Domingo are republics ruled by the colored race.

PORTO RICO

Of all the islands of this group, Porto Rico is to us the most interesting because it belongs to the United States. It is a territory of the United States. Name the others. Porto Rico is about three times as large as Rhode Island, but while Rhode Island has no mountains, nine-tenths of the surface of Porto Rico is mountainous.

This island is very productive, as is indicated by its name, which means "Rich Port." It is rich in many of the things which the United States must buy, such as sugar, coffee, bananas, oranges, pineapples and cocoanuts. What do these products tell you about the climate?

In the summer and autumn terrible storms, known as hurricanes, occasionally sweep over this and other islands of the group. They do great damage in city and country. Porto Rico has a weather bureau service just as we have in the different states, and information concerning the weather is sent to our country by cable.

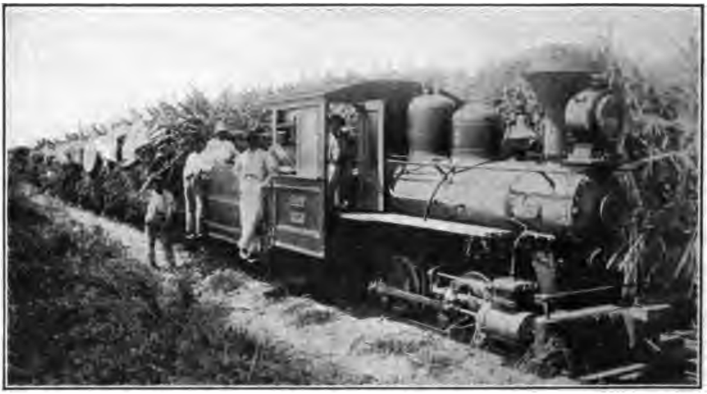


FIG. 92.—A Train on a Sugar Plantation in Porto Rico drawing the Sugar Cane to the Sugar Mill.

On the north coast is San Juan, a city of about 30,000 inhabitants. The name means St. John, and it is this name which Columbus gave to the island in honor of John the Baptist. The harbor is deep and landlocked. As we sail through the narrow channel, we see on the left Morro Castle, which was commenced in 1630. Around the city is a wall, built hundreds of years ago, for San Juan was founded in 1521. The houses on either side of the narrow streets are built of stone and mortar, and have flat roofs. From these roofs the rain water runs into cisterns, from which it is drawn for household use.

The city is built upon an island, connected with the mainland by a bridge. Although the streets are so narrow, they are generally bordered by beautiful shade trees, and are swept daily. It is not always convenient for two people to pass on the narrow sidewalks. Have you heard of Ponce de Leon, the Spaniard, who long ago searched for the fountain of youth? His old home is in this city.

Some strange sights may be seen in the streets of the cities. Peddlers carry upon their heads baskets filled with fruits. Bread also is carried on the head of the baker's man and delivered from house to house. The milkman frequently delivers his milk by means of a burro, on either side of which there is a large can. Instead of going to the market for poultry, it is purchased from the owners, who carry it alive or sometimes drive it through the streets.

It is eighty miles from San Juan to Ponce on the south coast, but we can travel the entire distance on a splendid military road. This road was constructed at a cost of $4,000,000. It is divided into sections two or three miles in length, each of which is kept in repair by peons.

Hills rise back of the city to a height of one or two thousand feet. Its streets are wide, and from its harbor sail ships with loads of coffee and sugar.

As in most tropical countries, the wants of the people are easily supplied. Therefore they do not have the energy that they have in colder regions. In the country districts many of the houses are simply huts. Often the floor is of dirt, and the roof thatched. Perhaps the door is simply an opening in the wall. There is little furniture, and some of the dishes are nothing but gourds.

The people spend much time in swinging in hammocks and playing musical instruments. A company of street musicians may frequently be seen entertaining a crowd of people. Unlike the other islands of the group, Porto Rico has a population that is chiefly white. Because of the many advantages which the people of our country have given to Porto Rico, we may expect great progress in this island territory of ours.

CHAPTER XXIII

BAHAMA AND BERMUDA ISLANDS

THE BAHAMAS

NOT far east of Florida a ridge rises from the floor of the ocean, but only its highest parts are above the water. The six hundred and more islands formed in this way are called the Bahamas. Most of them are so small that they are uninhabited. It was one of these islands which the lookout on Columbus' ship saw, when the cry of "Land! Land!" announced the discovery of America.

The winds have heaped up the white sands along the shore into low, rounded mounds called *dunes*. Back of these is the green of the vegetation. While there are no forests, many trees have been planted.

As the islands are along the border of the torrid zone, there is no winter. Although there is a moderate amount of rainfall, streams are almost unknown, for the loose soil rapidly absorbs the water.

The chief crops are oranges, pineapples and cocoanuts. The sea furnishes several important products, such as sponges, turtles, shells, pearls and salt. During the winter many Americans visit these islands because of their mild climate.

Although the Spanish discovered the Bahamas, they did not settle them. It was here that the fabled fountain of youth was sought. The islands have been in the possession of the English since 1718.

THE BERMUDAS

Another of the many possessions of Great Britain is a group of very small islands lying east of North Carolina in the Atlantic Ocean. These islands are called the Bermudas. Only during daylight can vessels safely pass through the coral reef that surrounds the islands.

On the Bermudas there is no lumbering, no mining, no manufacturing and no railroads. Agriculture is the only industry. You will know that even this industry is carried on in a small way when you learn that the total area of the islands is but eighteen square miles.

Cold weather never visits the Bermudas, and for this reason they are sometimes called the "Summer Isles." Banana, rubber, bamboo and oleander trees thrive here, but the chief exports are vegetables. Potatoes and onions are shipped in large quantities to New York, which is nearly seven hundred miles distant. You will be interested to learn that the people raise Easter lilies for the market. Sometimes an acre of land will yield one thousand dollars' worth of blossoms in a season. Many of these are sent to New York.

Because of the fine climate, many people visit the Bermuda Islands in summer as well as in winter. Of course, the inhabitants derive considerable money from the tourists.

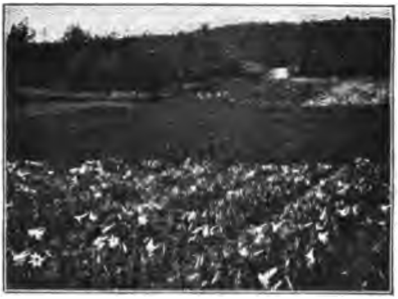


Fig. 93. — A Field of Easter Lilies in the Bermuda Islands.

The houses are made of coral rock, and are dazzling white in the sunshine. The rock, which is quite soft, is cut out in blocks by means of saws. From these white-roofed houses the rain water is led into cisterns. This water is used for drinking as well as for other purposes. Water is sometimes stored in large reservoirs.

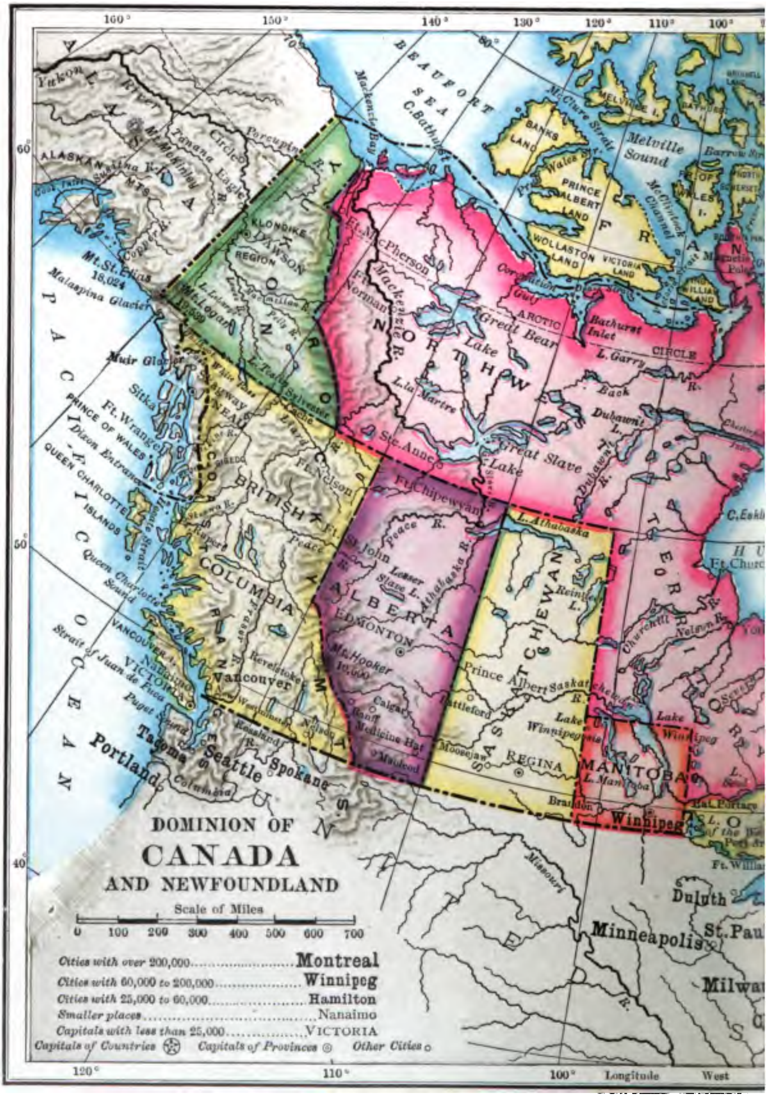
When the Bermuda Islands were discovered, they were not inhabited. Many of the people who now live there are negroes. England has long occupied this group of islands as a naval station. The ports are St. George and Hamilton, the capital.

CHAPTER XXIV

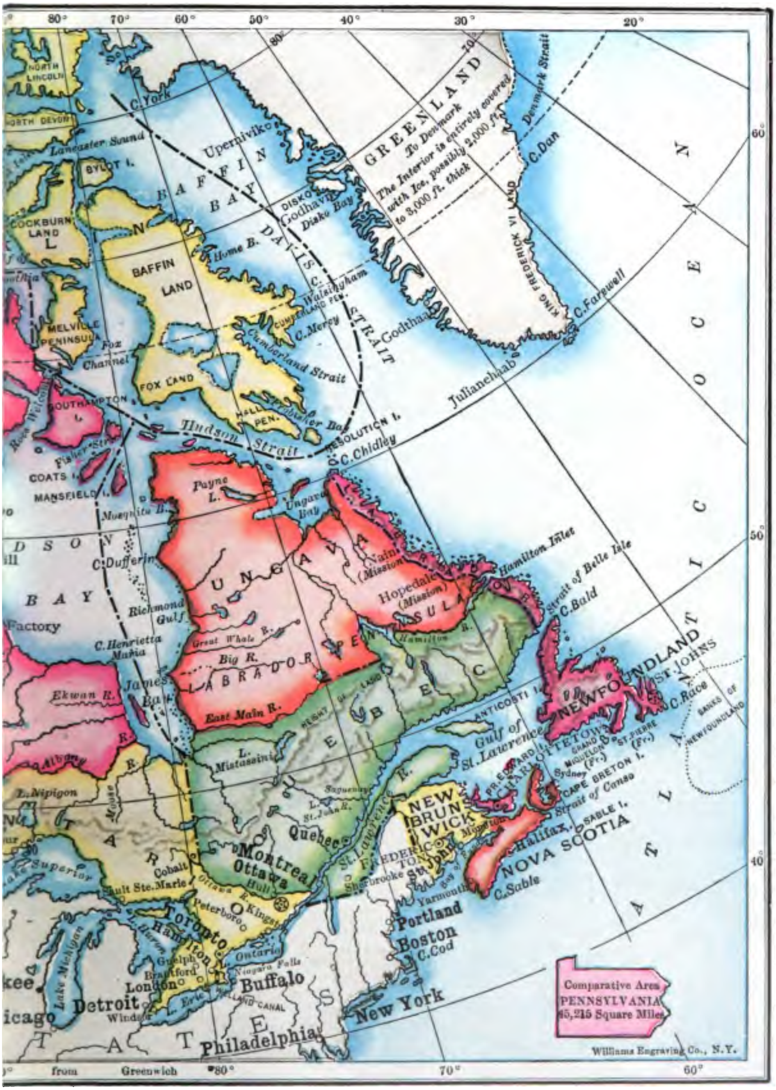
WESTERN CANADA

THE Dominion of Canada is about as large as the United States or Europe, but its population is no greater than that of the state of New York. Canada is north of the United States, and much of the northern part of the country has summers too short for agriculture. In the central and southeastern portions there are vast areas of good farming land, and the climate is more favorable for crops. Like our own country, Canada has a great mountainous region in the west, plains in the central part, and low mountains in the east.

When America was being settled, the French entered Canada by way of the St. Lawrence River. Many of these early comers were missionaries whose sole purpose was to Christianize the Indians. Others were trappers and traders. They made friends of the red men, and lived much as they did. Later came settlers who built log houses, cleared the land and planted crops. Towns were established, some of which are now large cities.


DOMINION OF
CANADA
AND NEWFOUNDLAND
Scale of Miles
0 100 200 300 400 500 600 700
Cities with over 200,000 .... Montreal
Cities with 60,000 to 200,000 .... Winnipeg
Cities with 25,000 to 60,000 .... Hamilton
Smaller places .... Nanaimo
Capitals with less than 25,000 .... VICTORIA
Capitals of Countries
Capitals of Provinces
Other Cities
160°
150°
140°
130°
120°
110°
100°
120°
110°
100°
Longitude
West
60°
50°
40°
70°
80°
ALASKA
Yukon
River
Circle
Porcupine
Tanana
Eagle
Mt. McKinley
ALASKAN Sustina R.
MTS.
Cook Inlet
Copper R.
Mt. St. Elias
18,024
Malaspina Glacier
Mt. Logan
19,539
YUKON
KLONDIKE
DAWSON
REGION
L. Lebarge
Lewes
Macmillan R.
Pelly R.
White Pass
Skagway
JUNEAU
L. Teslin
Sylvester
Muir Glacier
Sitka
Ft. Wrangel
PRINCE OF WALES
Dixon Entrance
QUEEN CHARLOTTE
ISLANDS
Queen Charlotte
Sound
Hecate Strait
VANCOUVER I.
Nanaimo
VICTORIA
Strait of Juan de Fuca
Puget Sound
Tacoma
Seattle
Spokane
Portland
Columbia
PACIFIC OCEAN
BRITISH
COLUMBIA
COAST
ROCKY
MTS.
Liard
Ft. Nelson
Ft. St. John
Peace
Skeena R.
Rupert
Fraser R.
Revelstoke
Vancouver
New Westminster
Nelson
Rossland
BEAUFORT
SEA
C. Bathurst
Mackenzie Bay
Ft. McPherson
Ft. Norman
Mackenzie R.
Great Bear
Lake
L. la Martre
Great Slave
Lake
Ste. Anne
Ft. Chipewyan
Ft. Smith
NORTHWEST
TERRITORIES
ARCTIC
CIRCLE
Coronation Gulf
Dease Str.
Bathurst Inlet
L. Garry
Back
R.
Dubawnt
L.
Dubawnt R.
C. Eskimo
HUDSON
Ft. Churchill
Churchill
Nelson R.
York
Severn
Lake
Winnipeg
L. Seul
Rat Portage
ALBERTA
EDMONTON
Peace R.
Lesser
Slave L.
Athabaska R.
Mt. Hooker
15,690
Calgary
Banff
Medicine Hat
Macleod
SASKATCHEWAN
L. Athabaska
Reindeer
L.
Prince Albert
Saskatchewan
R.
Battleford
Moosejaw
REGINA
Lake Winnipegosis
MANITOBA
L. Manitoba
Brandon
Winnipeg
L. of the Woods
Port Arthur
Ft. William
Duluth
St. Paul
Minneapolis
Milwaukee
Missouri
R.
UNITED STATES
BANKS
LAND
McClure Strait
MELVILLE I.
BATHURST
Melville
Sound
Prince of Wales Str.
PRINCE
ALBERT
LAND
WOLLASTON
LAND
VICTORIA
LAND
McClintock
Channel
Barrow Str.
NORTH
SOMERSET
PRINCE OF WALES I.
KING WILLIAM LAND
N. Magnetic Pole
FRANKLIN

FIG


GREENLAND
To Denmark
The Interior is entirely covered with Ice, possibly 2,000 ft. to 3,000 ft. thick
BAFFIN BAY
DAVIS STRAIT
BAFFIN LAND
COCKBURN LAND
NORTH LINCOLN
NORTH DEVON
BYLOT I.
Lancaster Sound
C. York
Upernivik
Disko
Godhavn
Disko Bay
Home B.
C. Walsingham
CUMBERLAND PEN.
C. Mercy
Cumberland Strait
Godthaab
Julianehaab
C. Farewell
KING FREDERICK VI LAND
C. Dan
Denmark Strait
MELVILLE PENINSULA
Fox Channel
FOX LAND
SOUTHAMPTON I.
Roes Welcome
Fisher Str.
COATS I.
MANSFIELD I.
HALL PEN.
Frobisher Bay
Hudson Strait
RESOLUTION I.
C. Chidley
Payne L.
Ungava Bay
Mosquito B.
C. Dufferin
Richmond Gulf
UNGAVA
LABRADOR PENINSULA
Nain (Mission)
Hopedale (Mission)
Hamilton Inlet
Hamilton R.
Great Whale R.
Big R.
East Main R.
C. Henrietta Maria
James Bay
HUDSON BAY
Factory
Ekwan R.
Albany R.
L. Nipigon
Moose R.
L. Mistassini
HEIGHT OF LAND
QUEBEC
Saguenay R.
L. St. John R.
Quebec
Montreal
Ottawa
Hull
Kingston
Sherbrooke
St. Lawrence R.
ONTARIO
Cobalt
Sault Ste. Marie
Ottawa R.
Peterboro
Toronto
Hamilton
Guelph
Brantford
London
Windsor
Detroit
Chicago
Milwaukee
Lake Superior
Lake Michigan
L. Huron
Ontario
Erie
Niagara Falls
WELLAND CANAL
Buffalo
UNITED STATES
Philadelphia
New York
Boston
C. Cod
Portland
NEW BRUNSWICK
FREDERICTON
St. John
Moncton
Bay of Fundy
Yarmouth
NOVA SCOTIA
Halifax
C. Sable
SABLE I.
PR. EDWARD I.
CHARLOTTETOWN
CAPE BRETON I.
Sydney
Strait of Canso
GRAND MIQUELON (Fr.)
ST. PIERRE (Fr.)
Gulf of St. Lawrence
ANTICOSTI I.
NEWFOUNDLAND
St. Johns
C. Race
BANKS OF NEWFOUNDLAND
Strait of Belle Isle
C. Bald
ATLANTIC OCEAN
Comparative Area PENNSYLVANIA 45,215 Square Miles
Williams Engraving Co., N.Y.
80° 70° 60° 50° 40° 30° 20°
60° 50° 40°
from Greenwich
80° 70° 60°

94.

In time, there was war between the French and the English, and as the English were victorious, the French were obliged to give up Canada. While the country is to-day one of the possessions of England, there are many French people in eastern Canada.

As you have learned, western Canada is a region of mountains. There are several systems, as there are in our country, but they are closer together. As there is more rainfall and less evaporation than in the western part of the United States, we find no desert area.

The southwestern coast of Canada is very irregular. It is like the coast of Maine, but the indentations and projections are larger and the water deeper. It is like the coast of Alaska, except that glaciers do not come down to the sea, for the climate along the coast is mild.

Vancouver Island is separated from the mainland of British Columbia by the Strait of Georgia, and from Washington by the Strait of Fuca. The island is about twice as large as Massachusetts. Here at the southern end is Victoria, the capital of the province. Across the strait the Olympic Mountains are seen. To the eastward, far beyond the Gulf of Georgia, rises the lofty conical peak of Mt. Baker.

Victoria has a large English population. There is an air of rest and quiet unknown in American cities. Being the capital of the province, the Parliament buildings are located here. They are splendid stone structures surrounded by fine grounds.

The winds that blow from the Pacific give Victoria a mild climate. To the north are the rich coal deposits at Nanaimo, and large quantities of coal are exported from this place. Esquimalt, three miles from Victoria, is an English naval station.

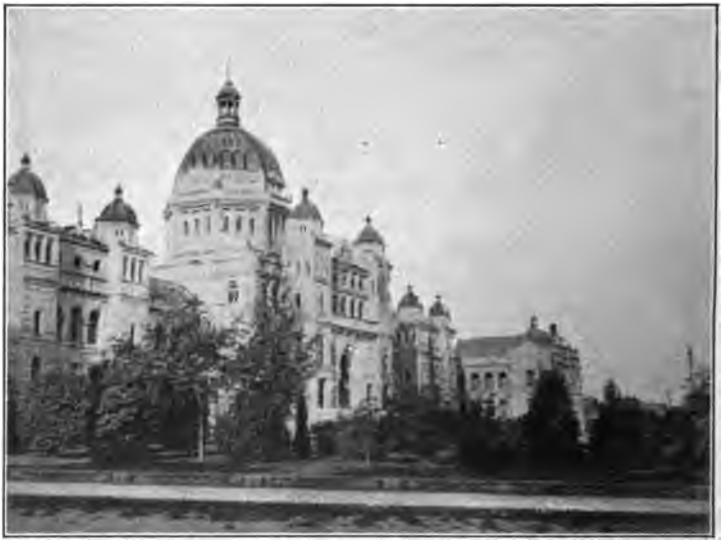


Fig. 95.—Parliament Buildings at Victoria, British Columbia.

Vancouver is situated upon the mainland, across the Gulf of Georgia. A steamer trip of about six hours takes us from Victoria to this city. Although the strait is wide, it is well protected, and the water is calm.

We pass many beautiful wooded islands, and at length pull up at the wharf at Vancouver.

The city is situated on a peninsula on the shore of Burrard Inlet, not far from the mouth of the Fraser River. It has a fine harbor produced by the sinking of the land. The Canadian Pacific Railway terminates here, and it is connected with all parts of the world by steam and sailing vessels. Fish and lumber are the chief exports. Tea and silk are received from the Orient. Where now there are great business blocks, fine residences, churches, schools and electric cars, there was in 1886 a dense forest. In May of that year the first house was built. Stanley Park is one of the most beautiful parks in the world. It is a part of the natural forest with its giant trees, vines, ferns and flowers. Drives and walks have been laid out, and there are drinking fountains, seats and tables for the accommodation of the public.

Like the Mississippi, the Fraser is building up a delta, and on this there are many fine farms, orchards and gardens. As you pass through this region in the late summer, you see children, some of them Indians, with apples, pears, peaches and plums for sale.

The Canadian Pacific Railway follows the Fraser River, and, after leaving the delta, enters the cañon which the river has cut through the Coast Mountains. At many points we see Indians fishing with dip nets.

They have built little platforms just above the water, and through the branches of the trees we catch the gleam of the salmon hung across poles to dry.

We cross range after range with valleys between. There are forests everywhere except where the fire has swept the country, and often we see sawmills where the trees are being converted into lumber. Many streams enter the Fraser, and lakes are numerous. In the Selkirk Mountains we see many snow fields and glaciers, and finally the train reaches a station which is within about two miles of the foot of a large glacier.

Imagine yourself just stepping from the train at Glacier, British Columbia. Plainly visible is a great mass of snow and ice filling the upper part of the valley in which the station and hotel are situated. It is the Great Glacier of the Illicilliwaet. On the left rises Mt. Sir Donald, the most lofty peak in the vicinity. It is said that from the summit of this mountain one hundred snow fields can be seen. A good trail leads from the hotel, winding among the trees which border a little stream. Delicious huckleberries grow in abundance along the way.

At length you reach the termination of the timber, and gaze across a wilderness of rocks and bowlders of all sizes. This is the terminal moraine of the glacier. It is just such bowlders as these which the thrifty New England farmers have been for generations gathering up so that they can cultivate their land more easily.

Across the moraine several small but noisy streams wind, all uniting with the larger stream which we followed in coming up the valley. The water has a milky color unlike that in streams with which you are familiar. One of these streams issues from an ice cave in the front of the glacier. The cave is about ten feet high, and perhaps fifteen feet in width. Its walls and ceiling are of beautiful blue and green tints. Here in little pools are quantities of a whitish deposit called *bowlder clay,* giving the streams their milky color.

The front of the ice varies from a few to perhaps seventy-five feet in height. In some places the slope of the ice wall is so gentle that we can climb up on the glacier. Ice axes are a great help in this.

Here the surface of the glacier is quite uniform, and walking is not difficult, and there it is broken into great cracks called *crevasses,* or rises in sharp pinnacles. This is because the surface over which the ice is moving varies. The crevasses are generally very irregular, so that we cannot see the bottom, but in some of them we can hear the water gurgling far below.

During the middle of the day the ice melts rapidly, and little rills run in all directions upon the glacier. Some of these drop into the crevasses.

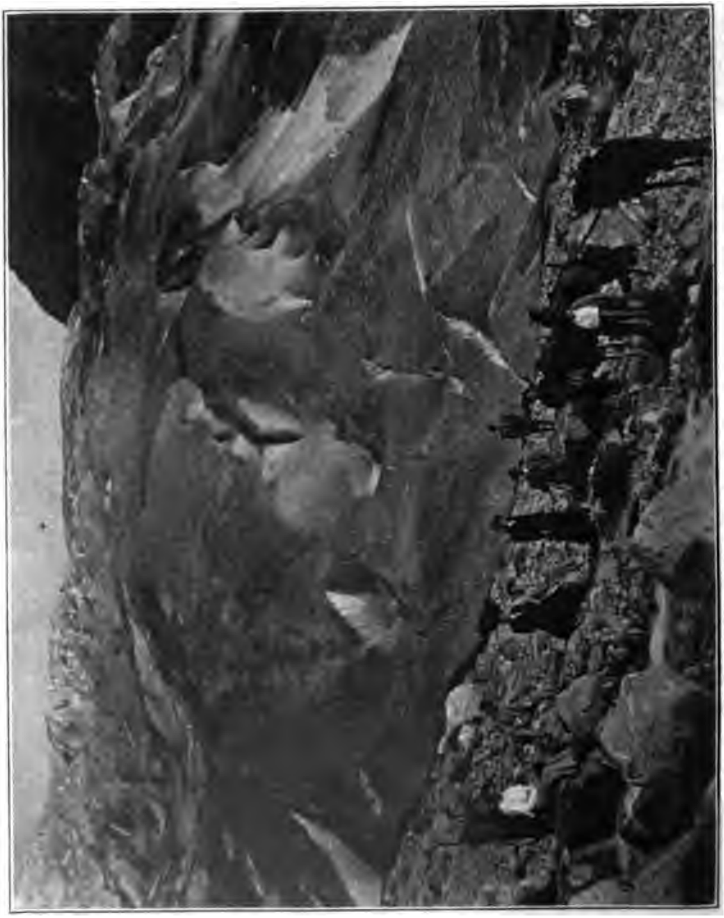


FIG. 96. — Foot of the Great Glacier of the Illicilliwaet, Canada.

Although the glacier is apparently stationary, it is slowly moving down into the valley. As it moves, it cuts and smooths the solid rock and pushes great quantities of material before it. Along the ice front a constant battle is being waged between the sun and the glacier. In winter the ice advances a little, and in summer it retreats. This glacier, like many others, is on the average retreating, but not uniformly. In 1904 it retreated eleven feet, the next year but two feet.

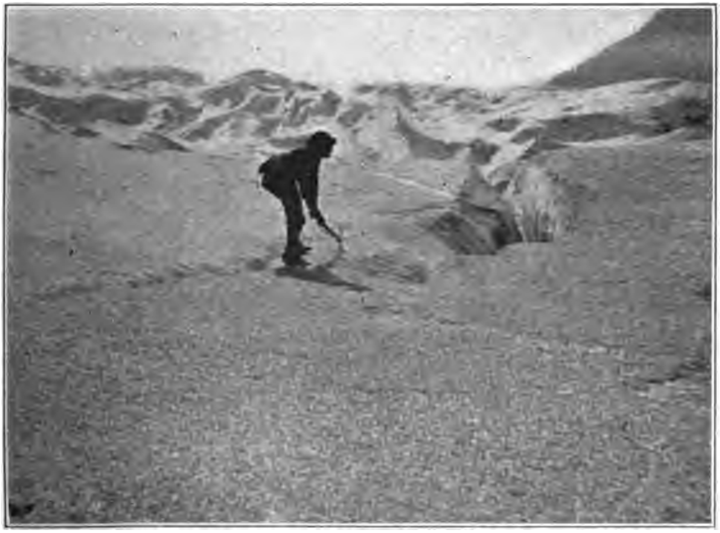


Fig. 97. — On the Illicilliwaet Glacier.

Just before the crest of the Rocky Mountains is reached, we come to Laggan. Here we set our watches one hour ahead. Several beautiful glacial lakes nestle like gems in their rock basins. The nearest of these is Lake Louise, which is reached by a fine mountain road. On the shore of the lake is a hotel built after the Swiss style of architecture. Across the lake the Victoria Glacier comes down to the water. A trail leads up to Mirror Lake and Lake Agnes. Many other lakes as well as glaciers are in the vicinity.

In these mountains of western Canada is a great national park similar to, but about twice as large as, our Yellowstone Park. This park, like the Yellowstone, has fine scenery, hot springs, buffalo, elk, deer, bear and other kinds of animals.

Among the many wonderful and inspiring parts of the world, this mountain region of western Canada holds high rank. To the beauty and the majesty of the ice fields is added that of lofty, forested mountains piled range upon range. There are charming Alpine lakes and streams and falls upon every hand. Because of this, people from many parts of the world are found here every summer enjoying the beauties which nature has given to this land.

CHAPTER XXV

GREAT PLAINS OF THE DOMINION

SLOPING gradually up to the shoulders of the wonderful Canadian Rockies on the west, and stretching away to the historic St. Lawrence country, lie the great plains of the Dominion. The map tells you little of the importance of this marvelous region. Should you board

FIG. 98. — A Wheat Field in Manitoba.

a train of the Canadian Pacific Railroad at Montreal, you would travel five days before reaching Vancouver. Three fifths of this time you would be passing through one of the great granaries of the world.

This portion of Canada has until recently been little known. During the last few years thousands of settlers from the United States and England have gone in to develop the vast resources of this land. As our train leaves the region of the Great Lakes, we enter a rich agricultural country. Immense ranches of wheat, oats and other grains lie spread out on either hand. Here and there small flourishing towns appear, and streams and beautiful lakes abound.

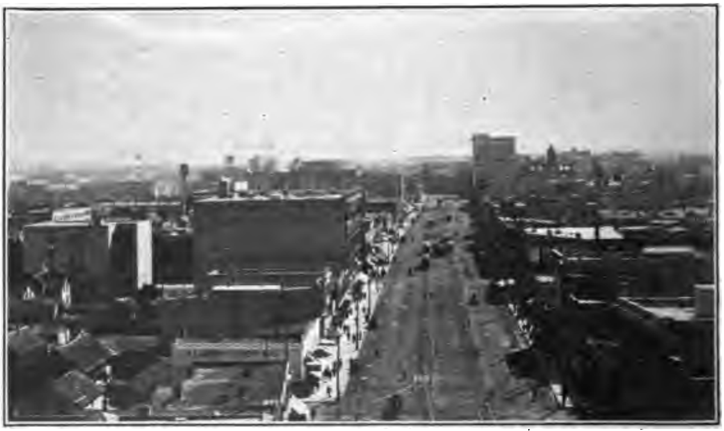


Fig. 99. — Main Street, Winnipeg, Canada.

As we rush along, we finally reach the city of Winnipeg, once called Fort Gary. This is the metropolis of the plain country and the capital of Manitoba. Winnipeg lies just south of the lake of the same name, where the Red and the Assiniboine rivers unite. The city reminds us of Chicago. As in the case of Chicago, the surrounding country is level. Towering grain elevators rise here and there, and are used for storing wheat and other grains until they can be loaded upon cars and shipped to eastern Canada, and thence to Europe. Some of this grain is sent to Minneapolis, there to be ground into flour, but most of it is shipped from Port Arthur and Fort William. It goes through the Soo Canal and the Great Lakes to Montreal, where it is reshipped to European markets.

The Canadians propose to build a railroad from the vast wheat fields that stretch westward from Lake Winnipeg to the shore of Hudson Bay. This route will shorten the journey to Liverpool about 1000 miles. As the Soo Canal is ice-bound for more than half of the year, the grain business suffers severely. The railroad will probably terminate at Fort Churchill or at Port Nelson, at the mouth of the river of the same name.

In Winnipeg are extensive stockyards, for thousands of cattle, sheep and hogs are raised in this region. Both meat and live animals are shipped by way of the Great Lakes and the St. Lawrence to Europe. Winnipeg manufactures flour, lumber, machinery, clothing and boots and shoes. In a quarter of a century the city has grown from a small town to a metropolis of some 150,000 people.

As our train moves westward through the region drained by the mighty Saskatchewan River, we pass more grain fields and vast herds of cattle. At every station we see a trading post bearing the sign of the Hudson Bay Company. Long before the railroad came, this company was buying furs from the hunter and trapper of the Northwest. In the far North trapping is still a very important industry, although the beaver, otter and red fox are becoming scarce. Montreal is the center of the fur trade of the Dominion, and the furs and skins are shipped to that city.

After passing Regina, the flourishing capital of Assiniboia, we enter upon the second half of our journey over the plains. Calgary, in Alberta, is reached just as we begin to ascend the slopes of the mountains. Stretching away to the north and east for hundreds of miles are millions of acres of land awaiting development. A few years ago this country was used only by the hunter and trapper, and was thought to be desolate and snow-covered the year around.

The Dominion of Canada has about the same area as the United States. In population there are nearly twenty people in the United States to one person in Canada. The country is made up of the provinces of Nova

Scotia, Prince Edward Island, New Brunswick, Quebec and Ontario in the east, and British Columbia on the Pacific coast. Comprising the great Central Plain are the province of Manitoba and the territories of Assiniboia, Alberta, Saskatchewan and Athabasca.

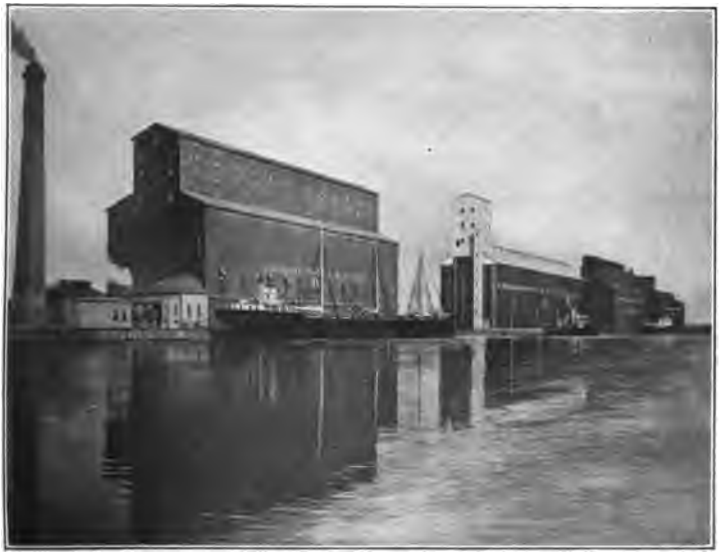


Fig. 100. — Grain Elevators at Fort William.

The great region bordering Hudson Bay on the west is known as Kewatin (the north wind). In this section there are no roads and no settlements, except those of the Indians, and the trading posts and missions. The only means of transportation are by canoe in the summer, and dog sledges in the winter.

Perhaps there is no region in the world richer in promise than the great plain which forms the heart of the Dominion of Canada. Some of the finest wheat of the world is grown here in immense quantities. It has great ranches where cattle, sheep and horses are raised. Just to the north is one of the most extensive forests of the world, and its mineral wealth is great.

The Canadian Northwest Mounted Police are an efficient body of men who patrol the country, and the excellent laws of Canada are rigidly enforced. Good schools are everywhere found. Let us hope that we shall always be friendly with our sister country on the north.

CHAPTER XXVI

UP THE ST. LAWRENCE

In the autumn of 1534 Jacques Cartier, a noted French explorer, sailed into the mouth of the great St. Lawrence River. He found it to be an arm of the ocean, so wide that when out in the middle he could not see land on either side. Forests covered most of the region.

No ships but his own did he see upon this great stream, but here and there close to the shore glided the canoes of the Indians, the only inhabitants of the land.

After a time Cartier and his sailors passed the entrance to a deep, dark gorge on the north side of the river. Out of it flowed a stream into the broad St. Lawrence. Look at your map and you will find the name Saguenay. The river flows to-day, as it did nearly four hundred years ago, in the cañon which it has cut hundreds of feet deep in the solid rock.

As the Frenchmen journeyed on into this land to which they gave the name of New France, they saw before them a wall of rock rising three hundred feet above the north side of the river. "Que bec!" (what a beak!) exclaimed one of the followers of Cartier, for the cliff juts out into the river not unlike the beak of some mighty bird. This exclamation gave the name to the city which now clings to the rock.

Cartier found that a settlement had already been established upon this commanding spot. It was a village

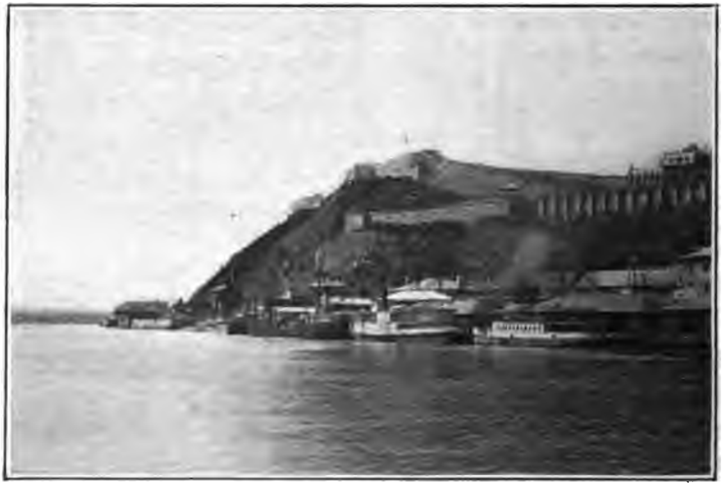


FIG. 101.—Quebec from the River, showing a Part of the Wall and the Fortress.

built by the Indians, and called by them Stadaconé. The Indian village has long since passed away and upon the narrow strip of land bordering the river we see docks, with great ships lying at anchor. Here are warehouses, stores and dwellings. The streets are narrow

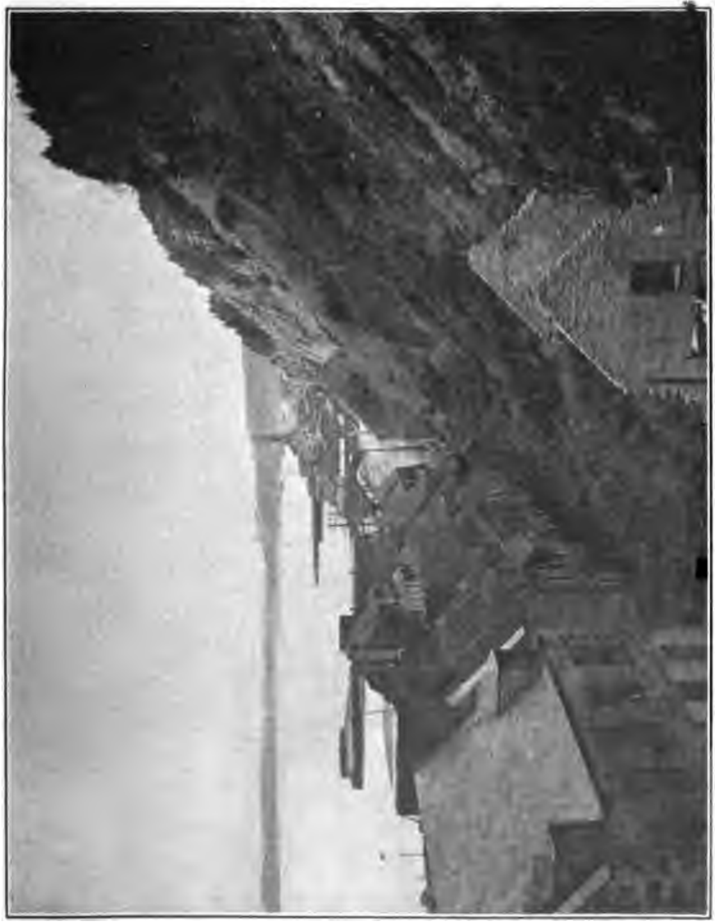


FIG. 102. — Quebec — a Glimpse of the Lower Town.

and paved with stone. Little Champlain Street winds along the bank of the stream for a long distance. There is barely room for it, since a wall of slate rock rises but a very short distance back from the water.

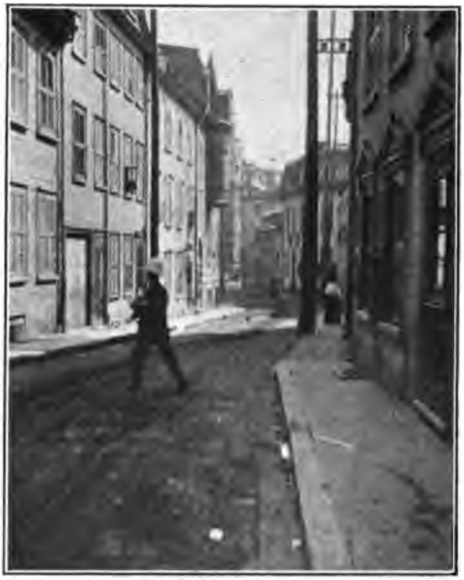


Fig. 103.—Little Champlain Street, Quebec.

Most of the buildings along this street are of the French style of architecture. The people who live in them are French. The signs are in French and in English. The windows are opened by swinging instead of raising the sashes. There are many window boxes filled with flowers. Children with goat carts are frequently met. In earlier days a flight of steep steps, called "Break Neck Steps," connected Little Champlain Street with the upper part of the town. The stairway which leads us up to-day is a great improvement over the old one.

Steep streets connect the upper and lower parts of the city, and there is even an elevator for carrying passengers. We notice signs upon the street cars which read, "Basse ville" and "Haute ville," or lower and upper towns.

In the upper town we find the finer business houses, hotels and homes. Here is the great Frontenac Hotel, with its famous Dufferin Terrace or promenade. From this terrace a wonderful view can be had. Far below, and extending beyond our vision both to the east and west, is the river, upon which great ships are moving to and fro. At our feet it washes the base of the cliff and the Island of Orleans. Directly opposite is Point Lévis, higher than Quebec.

Still higher are the Plains of Abraham and the Citadel. Cannon guard New York and many other cities in our country, but Quebec is the only walled city in America. Here soldiers are on guard, and one of them will show us about. We are not permitted to take cameras, however. We are shown one small brass cannon which the English captured at Bunker Hill. The soldiers are English, Scotch and Irish, indicating that France does not now own Canada.

In 1759 General Wolfe commanded English ships which moved up and down the river trying in vain to capture this stronghold. Finally a path was discovered leading up a steep gully to the Plains of Abraham. On the night of September 12, a part of the English left their ships and silently began the ascent. At four o'clock the next morning the French were surprised, and, after a short battle, defeated. The French general, Montcalm, as well as the English leader, lost his life. On the field of battle stands a monument upon which we read, "In memory of Wolfe and Montcalm."

There is no bridge across the river at Quebec. The great structure, commenced several years ago, collapsed before it was completed.

Down the river a few miles are the Falls of the Montmorency. Here the water drops one hundred feet farther than it does at Niagara, but the volume is not nearly so great. Power and light have been developed and transmitted to Quebec.

Cartier had continued his voyage for about 175 miles up the river from the point where Quebec now stands, when he saw a wooded island from which rose a high hill. As the French drew near, they saw a village nestling at the foot of the hill. Around the village waved fields of ripening corn. Corn is now our most valuable crop. As you know, it is sometimes called *Indian corn*, because the white people knew nothing of it until they saw the Indians cultivating the plant.

It was early October, and the trees which clothed the hill were dressed in their brilliant autumn colors. It was a beautiful and a peaceful scene. The red men came down to the bank of the river, and greeted the

Frenchmen kindly. They invited them to their village, and their chief, *Donnacona*, showed them about. How unlike a town built by white men was this village! There were no streets, no stores, and no factories sending their smoke into the sky. The dwellings, which the Indians called *wigwams*, were small and made of skins or bark. Such was the village of Hochelaga, where now stands the city of Montreal.

For many years Quebec was a more important city than Montreal, because it was at the head of navigation. When the St. Lawrence was deepened to Montreal, large ships went there to load and unload, and so it rapidly outstripped Quebec. You see that the importance of a city depends in large measure upon the advantages or disadvantages of its position.

Great quantities of wheat are shipped from the plains of Canada by the Great Lakes and the St. Lawrence to Montreal. Here it is reshipped for European markets. The city is a great fur center, for trapping is still important in the unsettled portions of Canada. Much timber is floated down the Ottawa, near the mouth of which Montreal is situated. During the winter its commerce decreases, because of ice in the St. Lawrence. The city receives cotton from our Southern states, and manufactures cotton goods.

Two great bridges span the river here, one built by the Grand Trunk and one by the Canadian Pacific

ity contains many great buildings,
the Cathedral of Notre Dame with
The cathedral seats 15,000 people.

— Dominion Square, Montreal.

al, situated in Dominion Square, is
Peter's in Rome.
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look down upon the city, the river and the surrounding country.

The famous Lachine Rapids are close to Montreal. Here the river boils and foams over the black rocks in its bed. Great ships cannot navigate this part of the stream, and so a canal has been cut across the south end of the island. Pleasure steamers, in the hands of skillful pilots, shoot through the rapids, avoiding, by sharp turns, the dangerous rocks.

The country between Quebec and Montreal is very interesting. There is still much timber upon the hilltops. The lowlands are devoted to pastures, meadows and farms. The farms are long and narrow, and were arranged in this way by the early French settlers so that each man might have river frontage. What advantage in this? Many of the farmers still obtain their water supply from wells, using a pole and bucket. Stone fences are common, the bowlders having been scattered over the land by the glacier, just as they were in New England.

Just before reaching Lake Ontario, we come to the Thousand Islands. There are not really 1000 islands, but there are many of them, and they are beautiful. Partly hidden by the trees which surround them are the costly dwellings of wealthy people, and the cottages and tents of those who have less money. Here many people spend the summer, boating, fishing, resting and watching the boats of pleasure seekers as well as the great ships which navigate the waters of the St. Lawrence.

The largest tributary of the St. Lawrence is the Ottawa. For a long distance it forms the boundary between the provinces of Ontario and Quebec. It drains a region rich in forests, and therefore great quantities of timber are floated down the river.

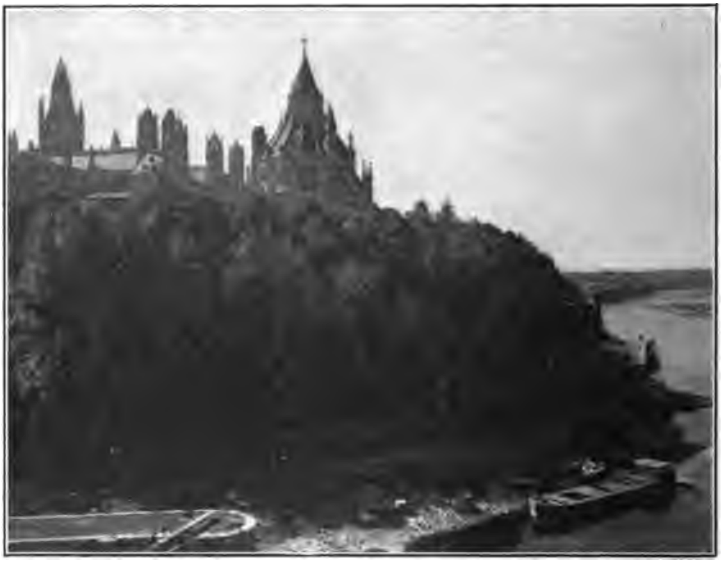


FIG. 105. — Parliament Buildings, Ottawa.

The city of Ottawa is located where the water of the river rushes over the picturesque Chaudière Rapids. Here the Rideau enters the Ottawa from the south, and at their junction there are two cataracts. From the north the Gatineau enters. These rivers furnish a great deal of water power, much of which is used in sawing lumber.

Ottawa is the national capital of Canada, and in it are located the beautiful Parliament Buildings. These are situated about 100 feet above the river, and the view from them is magnificent. The city is connected with Kingston, on Lake Ontario, by the Rideau Canal. This adds much to its commercial and industrial importance.

That portion of Canada lying between Lake Superior and Lakes Erie and Ontario is a peninsula. It is a part of the province of Ontario. The climate is tempered by these bodies of water, and apples, plums, peaches, grapes and tobacco are grown. In addition there are fine crops of grain, vegetables and hay. Because of these advantages, this part of Canada has a large population.

In this productive region, Toronto is located. It has a fine harbor on the shore of Lake Ontario, and an extensive commerce. Montreal is the only city in Canada larger than Toronto. This is quite an important railroad center. It packs pork, manufactures agricultural implements, and builds ships.

Toronto is a very attractive city. Its buildings are generally of brick or stone, and its streets are clean and bordered by fine shade trees.

CHAPTER XXVII

CANADA'S EASTERN SHORE

LABRADOR

THE Gulf of St. Lawrence may be entered by two passages. One of these is the Strait of Belle Isle, which separates Newfoundland from Labrador. This strait is ten or fifteen miles in width, and washes bleak, uninviting shores both on the north and the south. The other and wider entrance to the St. Lawrence is between Newfoundland and Cape Breton Island.

A strip of country extending back from the eastern coast of the Labrador peninsula belongs to Newfoundland. If you could see this country, you would hardly care to make your home there. It is a barren, cheerless coast. Long, narrow fiords lead back for miles from the sea, while the cliffs rise on either side sometimes to the height of hundreds of feet. Here are fine bays, but there are no cities upon them. As the climate is so cold, farming cannot be successfully carried on, and there are no great mines to be worked. You see, then, that there is nothing to cause cities to grow here.

In the north the hills and mountains are much higher and sharper than they are in the south. This is because, in times long since past, the glacier covered the southern part of Labrador. The ice rounded the elevations and scattered bowlders over the land. The mountains in the north were so high that the ice did not cover them, and so their peaks are sharper.

But the coast of Labrador is not uninhabited. As our boat carries us past the numerous sheltered bays, we see here and there a collection of small houses. They are the homes of fishermen who risk their lives upon the sea. In the shallow water to the east of Labrador, codfish abound. Every spring several thousand men, women and children sail from Newfoundland and spend the summer on this coast. The men catch the fish, while the women and children cut them open and dry them along the shore.

Nearly twenty years ago a young English surgeon gave up his prospects of acquiring a fortune in his own country, and has ever since devoted his life to the people of Labrador and Newfoundland. In his own ship he travels for hundreds of miles each summer, going all of the way from St. John's to Ungava Bay. In the winter he travels by means of dog sledges.

This man is physician and surgeon to the fishermen and their families. He settles disputes, for there are no policemen, lawyers or courts in this section. But more than all else, he is a missionary. He teaches the people the simple virtues of true manhood and womanhood. This man who gives his life to these fisher folk that they may be happier and better is Dr. Wilfred Grenfell. The people love him as only those can be loved who live for others.

While many of the people on the Labrador coast are summer residents, a considerable number make their homes there. On the north coast there are Eskimos, while in the interior live many Indians. The Indians are trappers and hunters. About once a year they make a trip to some coast settlement to sell their furs.

NEWFOUNDLAND

Newfoundland and the Labrador coast, which is a part of it, do not belong to the Dominion of Canada. Fishing is the chief industry on the island of Newfoundland. To the eastward lie the Grand Banks, the greatest fishing ground in the world. The cold Labrador Current brings to this region many icebergs. The air is chilled on coming in contact with them, and so fogs are common. These fogs increase the dangers that surround the fishermen.

Although the island has a population of 300,000, it is said that there is no town more than three miles from the coast. Small settlements are found in almost every available place along the shore, and here the codfish are dried on "flakes." A flake is a sort of platform made of poles, boughs and leaves, and on this the fish are spread.

St. John's, the capital, is built on a hillside facing the sea. The entrance to its fine harbor is but 600 feet wide.

Copyright, Brown Brothers, New York.

FIG. 106. — A Typical Newfoundland Scene.

The city owes its importance to the fishing industry. At Heart's Content, on Trinity Bay not far from St. John's, is the termination of one of the Atlantic cables.

NEW BRUNSWICK

New Brunswick has extensive forests, and therefore lumber and wood pulp are exported. The forests abound in game, and every summer many men go to

New Brunswick to hunt. Some coal is mined and exported, and there is some good agricultural land.

The Bay of Fundy, which separates this province from Nova Scotia, has the highest tides known. As the tide rushes up the St. John River, it enters, at the city of St. John, a narrow gorge. Here there is a waterfall. The tide raises the level of the water so much that the falls are covered, and the current turned upstream. In time the tide flows out, and again the falls are visible. These are known as the "Reversible Falls."

NOVA SCOTIA

Like Newfoundland, Nova Scotia is important for her fisheries, and fish are exported in large quantities. A great number of men are engaged in the lobster fishery, and there are about 250 establishments where lobsters are canned.

Timber is another source of wealth, and lumber is sent to the mother country. Considerable coal is mined, some of which goes to New England, where it is used in the great manufacturing centers.

In the western part of the peninsula there is some good farming country. In addition to potatoes, rye, oats and hay, excellent apples are grown. These find a market in England, New England and New York.

On one of the fiords of the eastern coast is the city of Halifax. It has an excellent harbor which is never ice-bound. This gives it much importance, especially as a winter port. Halifax is a great naval station. We may see warships in the harbor, and soldiers and marines in the streets. The citadel with its walls and cannon is more than 250 feet above the harbor.

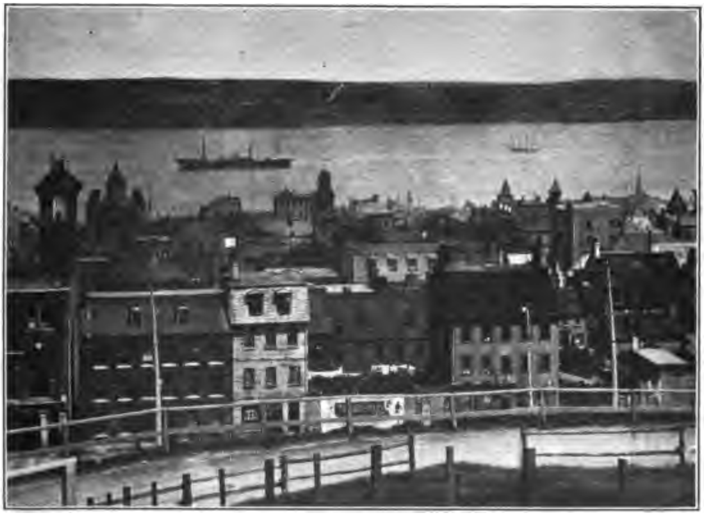


FIG. 107. — Halifax.

Formerly Nova Scotia, like the rest of Canada, was claimed by the French. Several times it changed hands as the French and the English fought with one another. After it had finally become an English possession, it was believed that the French, or *Acadians* as the inhabitants were called, were aiding the Indians in their battles with the English. Accordingly, one day in 1755, the people were asked to assemble in their churches. They did so, and more than 6000 of them were seized and carried away in English ships. They were scattered along the coast, some being taken as far south as New Orleans. Others were taken to the West Indies, and even to British Guiana in South America.

The Basin of Minas is on the west coast, also the valley of Cornwallis, in which Grand Pré is situated. This is the "Land of Evangeline" of which Longfellow has so beautifully written.

CHAPTER XXVIII

THE LAND OF THE ESKIMOS

THERE are deserts of snow and ice as well as deserts of sand, for a desert is a land area where little vegetation grows. The scanty vegetation may be due to lack of water or lack of heat. The extreme northern part of the mainland of our continent, as well as the many islands to the north of it, are frozen deserts. Here there are no forests, no fields of grain, no gardens and no pastures with flocks and herds.

In some parts of this Northland the sun does not appear above the horizon for many days at a time during the winter, while in the summer it may be seen at midnight as well as at midday. The summers are warmer than would be expected, because of the long days. During this season the snow melts, and low forms of vegetation spring into life. Moss covers the ground, flowers bloom, and berries ripen. In Greenland this is true along the coast only. During the long, dark winter the temperature may fall as low as −70° F. How cold does it get where you live?

You would not expect to find such a land as this inhabited, and yet people have lived there for a long, long time. They are called Eskimos. Their food is the flesh of the hardy animals that are found there. In fact, the word *Eskimo* means "flesh eaters."

The reindeer, walrus and seal are the animals most commonly used for food. The flesh is eaten raw as well as cooked, and the people eagerly drink the oil made from the fat or *blubber* of the seal and walrus. During the summer eggs are gathered and wild ducks are killed for food. Practically the only vegetable food that many of the Eskimos have, are the berries picked at this season.

We do not have to depend entirely upon the plants and animals that are found in our vicinity. Wagons, ships and trains carry supplies from place to place. Nearly every time we sit down to a meal we eat things that have come from various parts of the world. Many of the Eskimos have no means of getting anything except what their own land supplies.

The same thing holds true with regard to their clothing. They must use the materials that they have at hand. No cotton, flax or hemp grow in this frozen land, and there are no sheep to furnish wool. The coats that keep the reindeer, the polar bear, the fox, the seal and the walrus warm, protect the people.

The men and women, the boys and girls, dress so much alike that at first it is difficult to tell the one from the other. They wear jackets made of the skin of the reindeer, to which hoods of the same material are attached. The edges of the hoods, as well as the wrists, are bound with dogskin, with the hair left on. The mothers carry their babies in their hoods, and here they are snug and warm.

Both men and women wear trousers made of reindeer or sealskin. The women wear their trousers tucked into their high sealskin boots, while the men do not. Instead of wearing stockings such as ours, the Eskimos wear an inner pair of boots made of foxskin, with the fur inside. During the coldest weather two suits are worn when out of doors.

Perhaps you are wondering how the clothing is made. It is all made in the home, for there are neither stores nor tailors. You do not hear the hum of a sewing machine in an Eskimo house. The sinews of animals are used for thread, and sharpened bones serve as needles.

As the Eskimos have no forests and no stone quarries, and do not make bricks, their houses are unlike any with which you are familiar. The only building material that many of them have is snow and ice.

When the Eskimo gets ready to build his winter home or *igloo* (ĭg′loo), he selects a place where the snow is firmly packed. With a long bone knife he cuts out blocks eight to ten inches in thickness, about two feet wide, and perhaps two and one half feet long. These are placed on the ground, end to end, in the form of a circle.

A second row of blocks is laid upon the first, and so on, each circle being smaller than the one just below it. At last one large block at the top completes the building.

When the igloo is finished, it looks a little like a great white bowl turned upside down. The crevices between the blocks are filled with snow to keep out the cold. A door is made by leaving an opening at the bottom of the wall. From this a snow tunnel extends outward for ten or twelve feet. Blocks of snow serve to close the opening. As the roof of the tunnel is low, the people enter their houses by crawling. A cake of clear ice placed in the wall serves as a window.

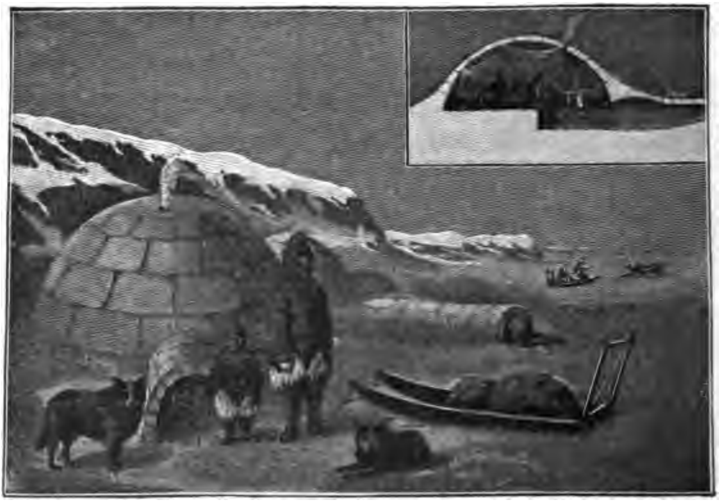


Fig. 108. — An Eskimo Home.

At one side of the hut a bench of hard snow is left to be used as a bed. Over this a waterproof skin is spread, and upon this other skins and furs are arranged. The houses may be from twenty-five to forty feet in circumference. Some are quite low, while others are twice as tall as a full-grown person. Two families sometimes occupy the same house, as the larger number of persons keep the igloo warmer.

The stove is a stone that has been hollowed out. In fact, it is both a stove and a lamp. Some whale oil and a wick of moss complete it. The heat from this stove keeps the igloo quite warm when the entrance is closed, for the snow does not allow the heat to escape readily, and it keeps out the cold equally well. Because it is able to do this, we call snow a *poor conductor.*

On the walls of the house are the skins of the bear, fox, seal and walrus. A few articles of clothing, bows and arrows, harpoons, knives, cups and pails are to be seen. The cups and pails are made of sealskin.

When the long winter has ended and spring has returned to the Northland, the igloo begins to melt. The summer home, called the *tupec,* is made of walrus and sealskins. The tent poles are the long bones of the walrus and the whale. During the summer, the Eskimos move about from place to place as they change their hunting and fishing grounds.

Not all Eskimo houses are like those that have been described. The Eskimos who live on the west and east coasts of Greenland are visited at intervals by the Danes, who own the country. In fact, some of the Danish people make their homes on the west coast. They have taught the Eskimos to use wood and stone in building their houses. A little driftwood lands on the shores of Greenland, but the chief supply is furnished by the white men. In exchange for furs, skins and the tusks of the walrus, the Eskimos are given clothing, cloth, knives, guns, dishes and food.

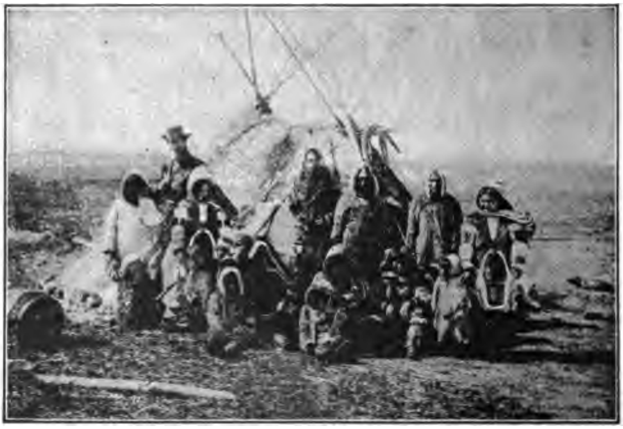


Fig. 109. — An Eskimo Tupec.

In their play, children sometimes hitch dogs to sleds. In Eskimo land this is done in real earnest, for during the winter the only means of travel are on foot and on dog sledges. The sledge, which is called a *kamutee* (kä-mü′tee), is made of pieces of driftwood or bones fastened together by means of thongs. Some of the sledges are flat on top, and some have a sort of railing along each side which makes it easier to pack on a large load.

The dogs, called *mikies* (mī′kĭes), are hitched tandem, and there are sometimes as many as ten in a team. One dog always acts as the leader for the team. The harnesses are made of seal and walrus hide. The driver has a whip with a short bone handle and a very long lash, which he cracks sharply about the ears of any dog that does not attend to business.

In the summer the people travel in boats made by stretching skins over a frame of wood. A *kayak* (kay′ak) will carry but one person. It may be twenty feet in length, and but two feet wide. The skin is drawn over the top of the boat as well as the bottom and sides, leaving a circular opening just large enough to admit the body of a man. The kayaks are light, and are easily carried when necessary. The *umiak* (üm′ĭak), which sometimes has a sail, will carry several persons. It is used when the people are moving their camp, or going on a hunting expedition.

About 500 years before Columbus discovered America, a hardy explorer from Iceland visited the great island lying northeast of Davis Strait and named it Greenland. Although the name suggests the green of forest trees and meadows, there are neither here. A great mantle of snow and ice covers nearly all of the island.

Little is known of what lies buried beneath the ice. A few mountain peaks called *nunataks* rise above the snow to heights of eight or ten thousand feet, but only their upper portions are visible. The great ice cap moves slowly from the interior to the sea. At the coast immense icebergs break off and drift to the southward to threaten the lives of the fishermen on the Grand Banks. If the largest of these icebergs could be marketed in our cities at the price for which ice is commonly sold, they would bring thousands of dollars each.

As you have been told, the inhabitants of Greenland are chiefly Eskimos who are found on both the east and west coasts. Nearly all of the settlements are on the west side, stretching from Cape Farewell on the south to Upernivik far beyond the Arctic Circle.

Greenland is about sixteen times as large as New York State, and yet its total population is but a little more than 12,000. This is because the conditions that exist there make it impossible for the country to support very many people.

The land of the Eskimos will never have railroads and cities, for, as we have seen, there is no opportunity for industries and commerce. The country seems to us very desolate, and the homes of the people almost comfortless, yet the people seem to be as happy as ourselves. This shows us that contentment does not depend entirely upon what we have to eat, our clothing, the furnishings of our houses, or public entertainment.

CHAPTER XXIX

FORESTS AND FORESTRY

In most parts of the world where the rainfall is sufficient, forests are found. In the polar regions forests are lacking, because of the intense cold. The United States has five great forest regions. These are the New England, the Great Lakes, the Southern, the Rocky Mountain and the Pacific forests.

Trees that drop their leaves every autumn are known as *deciduous*. Name trees of this class. Other trees are evergreen. Many of the evergreen trees bear cones, and are therefore called *coniferous*. The banana, palm and other tropical trees are evergreen, but they do not furnish lumber.

Some forest trees produce *hard wood,* and others *soft wood.* Of the hardwood trees in our forests, the oak, hickory, walnut, cherry, ash and maple are the most valuable. The wood of these trees is used in making furniture, doors, floors, vehicles, ships, passenger cars and farming machinery. Most of the hardwood trees have broad leaves, and drop their foliage yearly.

Fifty years ago there was much hardwood timber in Illinois, Indiana, Ohio and Kentucky. Most of this has been used, and our hardwood forests are now chiefly confined to the slopes of the Appalachian Mountains.

The chief softwood trees are the pine, hemlock, spruce, fir, cedar, poplar, gum, basswood and redwood. These are used for general building purposes. Soft wood is less expensive than hard wood. Most of the softwood trees used for building purposes are coniferous. All coniferous trees have needle-like leaves and are evergreen.

When the white men first came to America, they had to cut down trees in order to cultivate the land. It seemed as though there would never be any lack of lumber. Our forests are being cut down very rapidly, and if nothing were done to protect them, they would not last very long.

Lumber is used in making houses, furniture, ships, cars, vehicles and farming machinery. Countless trees are used for telegraph, telephone and electric light poles and fence posts. The rails of all of our railroads are laid upon wooden ties. Paper, barrels, boxes, toys, spools and pencils are made of wood. Much timber is used in supporting the walls and roofs of mines, and also as fuel. In addition to this, thousands and thousands of little trees sparkle in the light of small tapers on Christmas Eve.

Forest trees are of use to us in other ways. From the bark of the hemlock and the oak, *tannic acid* is obtained. This is used in tanning leather. The rubber tree furnishes rubber, and the hard maple, sirup and sugar. The walnut, hickory, butternut and other trees yield valuable nuts.

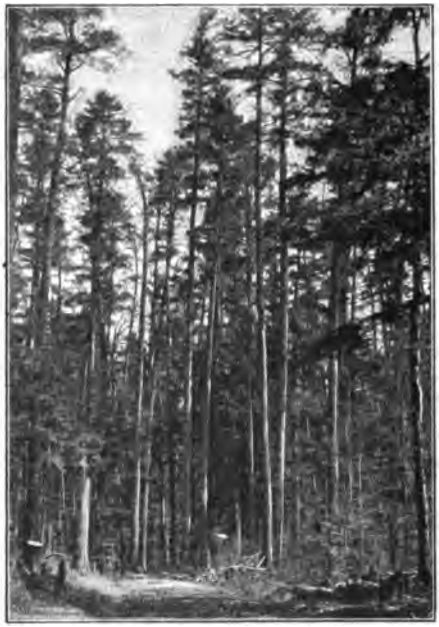


Fig. 110. — A Forest of Fir Trees.

In the forest underbrush, vines and plants of many kinds grow. These, as well as the twigs, leaves and vegetable mold, prevent the water from running off rapidly. Because of this, the water is fed to springs, wells and the land generally, more regularly than it would otherwise be. This shows you that agriculture depends in part upon forests.

When the forests have been removed, the streams are more subject to flood, and therefore deposit much sand and mud in their channels. This, of course, hinders navigation. Streams that flow regularly are more valuable for power than those that do not.

For many years after our country was settled, New England produced all the lumber needed at home, and much for exportation. Now much timber is being cut in all of our forest areas. An immense amount of timber is cut in the region around Lake Superior, and is shipped by water to the lake ports. We have more timber in California, Oregon and Washington than in any other part of our country.

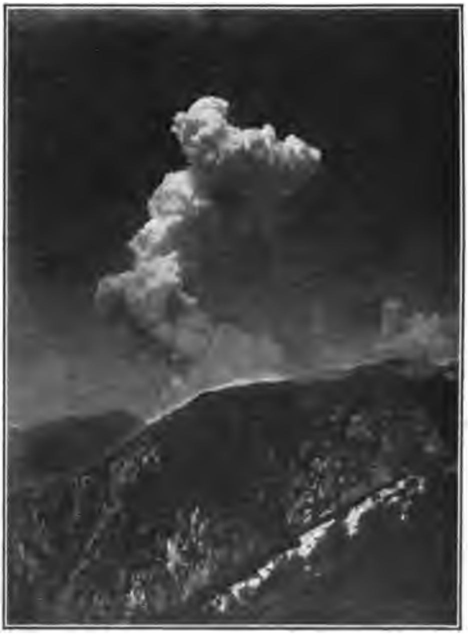


FIG. 111. — A Forest Fire.

The use of lumber has increased so rapidly that we now cut three or four times as much as grows during the same period. It is not the use alone that is exhausting our timber. A great deal is wasted, and much is destroyed by fire. Every summer and autumn fires rage in our forests. These are often due to the carelessness of campers and hunters. In August, 1910, there were forest fires in many parts of the United States. The government spent several thousand dollars a day in fighting them.

Because of our failing timber supply, our government has set aside many forest areas which are known as National Forests. The first of these was the Yellowstone National Forest, created by President Harrison in 1891. There are now nearly two hundred of these national forests.

Men known as *rangers* guard the forests. They try to prevent fires, and they must fight them when they occur. They also see that people do not cut the trees without permission, nor kill the animals that live in the forests.

As most of our national forests are in the mountains, traveling in them is very difficult. The brush is cleared away, and trails cut. Where possible, roads are made. Here and there narrow strips are cleared in order to check the spread of fire. These strips are called *firebreaks.*

The rangers must have cabins in which to live, and barns for their horses. In order to secure help when it is needed, telephone lines connect the rangers' cabins, and they also connect them with the nearest town.

Protecting the forests is not the only work of the

Forest Service. Both seeds and small forest trees are planted in great numbers. This work is called *reforestation.* It is carried on where the fire has destroyed the forests, and in some places where trees have never grown. Trees are raised from seed at nurseries in the forests, and when they are large enough they are transplanted.

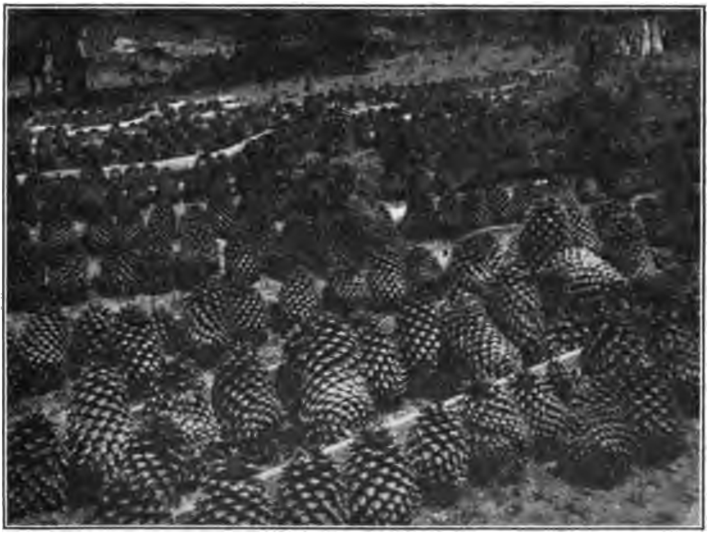
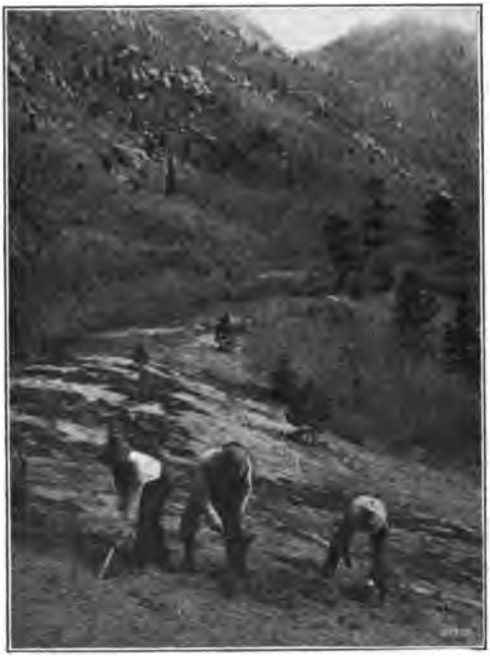


FIG. 112.—Drying Cones to get Seeds for Planting.

To carry on the work of protecting and replanting the forest requires much money and many men. While a large sum of money is spent, the amount per acre is only about one cent yearly. In European countries many times this amount is spent. The total number of men employed in guarding our forests and in planting trees is about 1500.

Who does not love the forests? What a joy it is to camp in them during the summer! In their cool, shady depths there are lakes, streams and waterfalls. When tired of walking, we sit down beside one of the great trees. Through the leafy branches we catch glimpses of the blue sky and the fleets of clouds sailing overhead. Squirrels spring from bough to bough, or scamper into their homes in the hollows of the trees. Now and then we hear a woodpecker rapping.



Courtesy U. S. Forest Service.

FIG. 113. — Planting Trees on a Denuded Slope.

At night our camp fire lights up a small circle about it. Beyond this the shadows grow deeper and deeper, and the forms of the trees are dim and uncertain. In the blackness beyond, a tiny light suddenly gleams and disappears. There is another and another. They are all about us. We discover that they are in motion. The electric lights that illuminate our homes and streets are no more wonderful than the lamps of these little fireflies.

The rustling among the branches of the trees changes to whispers, and we fall asleep. Many of the animals are wide awake, however. The woodmouse creeps along his well-traveled paths, which are so small that you will never see them unless you observe closely. The timid rabbit hops out into an open space. Now like a flash he disappears, for his sharp ears have caught the sound of the stealthy approach of the fox. The shiny-coated mink is prowling about in search of food. In the morning you may see his tracks in the wet mud close to the edge of the stream.

In the forests there is such rest and quiet as cannot be found in our busy cities. Here our bodies and minds are refreshed and strengthened. Because our forests are of value to us in so many ways, we should do all that we can to prevent their destruction. We can all help in this by being careful to put out our camp fires when we leave them, and by not cutting young trees. The forests should serve the generations to come, and give them pleasure just as they do us.

CHAPTER XXX

RECLAIMING THE DESERT

In most parts of the world, agriculture depends upon rainfall. When there is a lack of rainfall during the growing season, the crops suffer. This means a loss to farmers, and, in fact, to everybody, for when crops are poor, the price of food is high. When the dry spell, or *drought*, is long continued, springs and wells fail.

There are parts of our country where for months at a time no rain falls. Over large areas the average rainfall for the entire year is less than ten inches. What is the yearly rainfall where you live? These regions of *very* scanty rainfall are known as *deserts*.

West of the Rocky Mountains, and east of the Sierra Nevada and the Cascade mountains, there are large areas of desert. As this region is surrounded by lofty mountains, most of the moisture is condensed before it reaches the desert. The high plains on the eastern side of the Rocky Mountains have a small amount of rainfall.

There is little vegetation on a desert. Because of this the wind easily moves the grains of sand from place to place. They collect on the windward side of each clump of sagebrush and other plants, and form mounds called *dunes*. The wind drives the sand over these dunes, just as it moves snow over snowdrifts.

Some of the plants that grow upon the desert have thick, leathery leaves which prevent the rapid escape of moisture. In the spongy bodies of some of the cactus plants considerable water is stored. When the Indians of Arizona and northern Mexico are much in need of drinking water, they cut into the body of the barrel cactus. By squeezing the pulpy material they some-

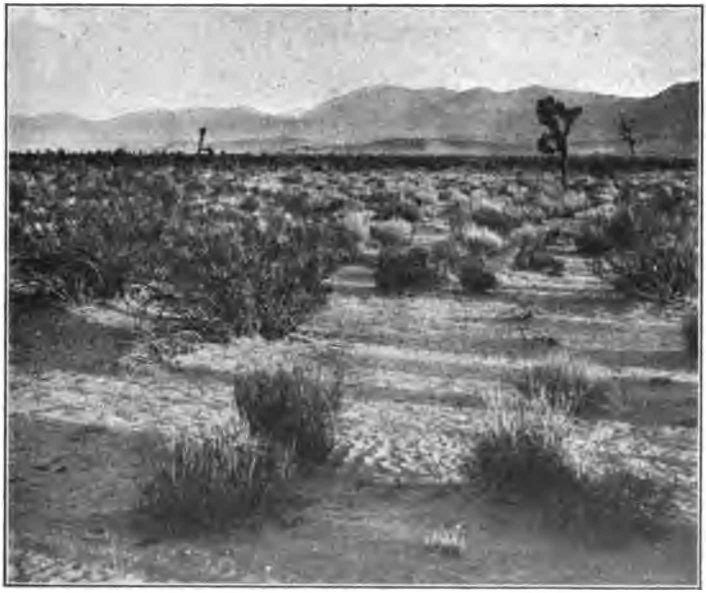


Fig. 114. — Desert Vegetation.

times secure as much as two or three quarts from a single plant. The cactus, Spanish bayonet and some other desert plants have sharp spines. These protect them against animals.

As you ride over the arid sections of the West, you will see prairie dogs standing erect beside their holes in the sand. Quick as a flash, if they think that danger threatens, they drop into them. Cattle and horses, when running, sometimes break their legs by stepping into these holes. Jack rabbits are frequently seen moving with great bounds across the sands or through the sagebrush. There are also coyotes, rattlesnakes and horned toads.

Across these dreaded stretches of country the pioneers slowly toiled in their canvas-covered wagons, called *prairie schooners*. Often the men walked beside the oxen or horses. Many animals and men lost their lives because water could not be found.

Thousands of families are now cultivating beautiful farms where the land was a desert waste but a few years ago. On the lofty mountains which are on one or more sides of our deserts, rain and snow fall. The streams which flow from these mountains have in some cases been made to water the thirsty land. When the valleys are not too deep, canals are cut which carry the water to smaller ditches. Watering land in this way is called *irrigating*, and changing the

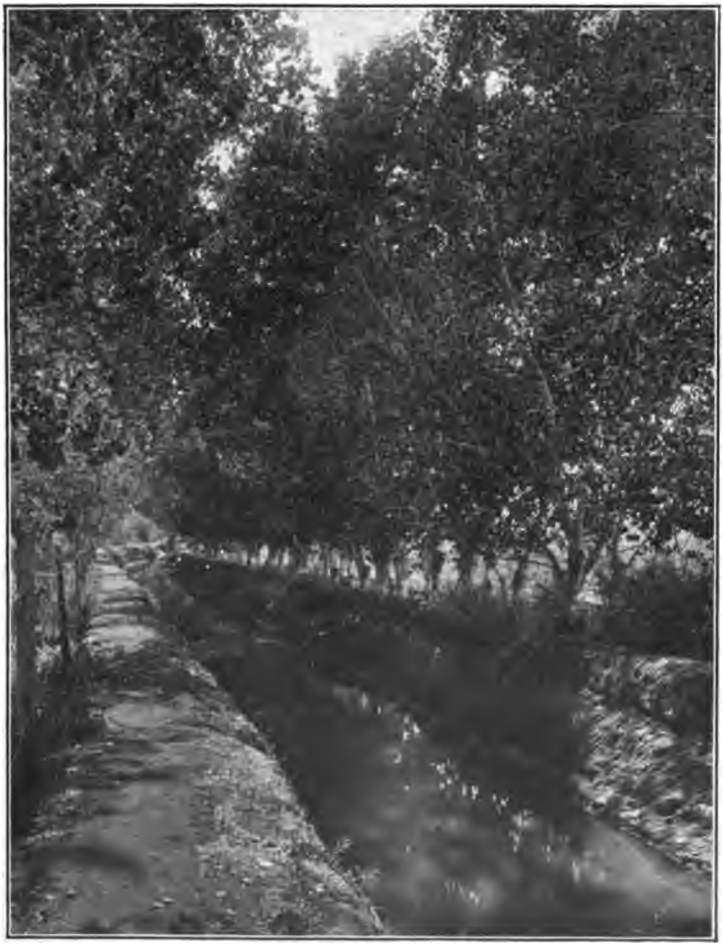


Fig. 115. — Irrigating Canal, Phœnix, Arizona.

desert into farms and orchards is called *reclaiming* the desert.

About 1,000,000 foreigners come to the United States every year to make their homes with us. This rapid growth in population means a great demand for farming land. Some reclaiming has been done by individuals and companies. The work is costly, and disputes often arise as to water rights. A department of our government known as the Reclamation Service has for several years been making homes in the desert for those who desire them.

The money obtained from the sale of government land in our Western states is used for this purpose. When a tract of land has been reclaimed, it is sold in small farms. The settlers buy the land on the installment plan, and the Reclamation Service uses the money to develop more land. This plan makes it possible for poor people to obtain farms.

Our government has reclaimed land in all of the states west of the Rocky Mountains, and in several east of them. On January 1, 1909, the work had included the digging of nearly 3500 miles of canals and ditches and sixteen miles of tunnels. Nearly 1000 miles of telephone lines had been built, and more than 300 miles of railroad.

Near Phœnix, Arizona, in the Salt River Valley, oranges, lemons, figs, olives, almonds, grapes, dates and other crops are grown on land that was once a dreary desert. The Yakima Valley in southern Washington is a region of fine farms and splendid orchards. Here apples, pears, peaches, plums, apricots, cherries, potatoes and hops are produced in great quantities. Good orchards sometimes sell as high as $2000 per acre.

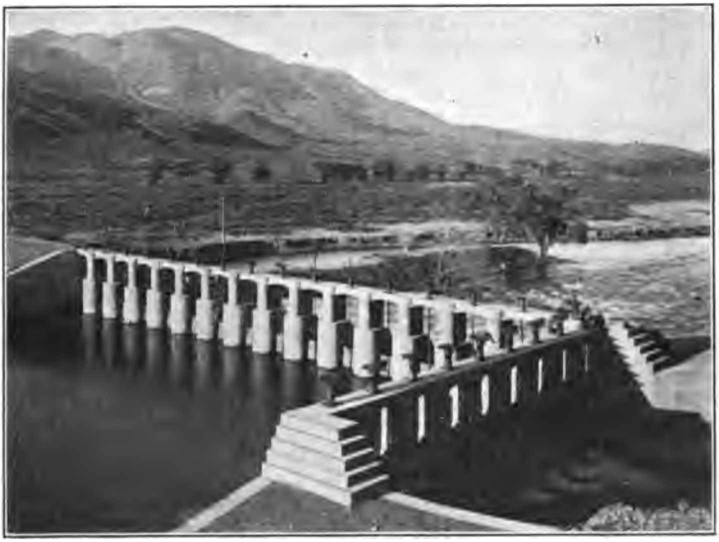
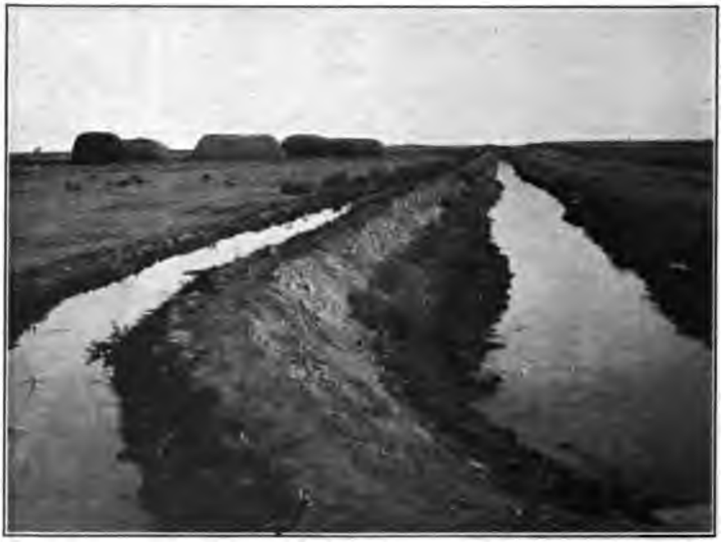


Fig. 116. — Truckee River Dam, Nevada.

Perhaps the most wonderful piece of work which the Reclamation Service has done is in western Colorado. It is called the Uncompahgre Project. The Uncompahgre and the Gunnison rivers, both tributaries of the Grand, are about ten miles apart. The Uncompahgre has not water enough to irrigate the land in its valley. The Gunnison has a large volume of water, and the valley is a cañon. A mountain wall 2000 feet high separates the valleys. A tunnel six miles long was cut through the mountains, and the waters of the Gunnison now irrigate the valley of the Uncompahgre.



Courtesy Portland Commercial Club.

Fig. 117. — Reclaimed Land in Eastern Oregon.

Farming by means of irrigation is quite different from farming in a region where rainfall is depended upon. The farmer who uses irrigation, waters his crops just when they need it. The land is not allowed to get too dry, and the crops are not injured by too much water. Crops produced on irrigated land are more certain, and are larger than those produced on land not irrigated. Often several crops are grown each year.

As you have learned, the land which the government has reclaimed is sold in small farms. Therefore, the population on the reclaimed lands is more dense than it is where the farms are large. Because of this, good roads, schools, churches and other advantages are quickly obtained.

The work of reclaiming the desert will be carried on for years to come. A large part of our desert land, however, will never come under cultivation. This is because there is not enough water in the arid regions to irrigate all of the land. If all of the water that falls during the rainy season could be stored in reservoirs, more land could be reclaimed.

It is a wonderful sight to see flourishing towns, farms yielding abundant crops, and orchard trees bending beneath loads of fruit, where but a few years ago there were only sand and sagebrush. One of the greatest things which our government has done is to reclaim portions of the desert.

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